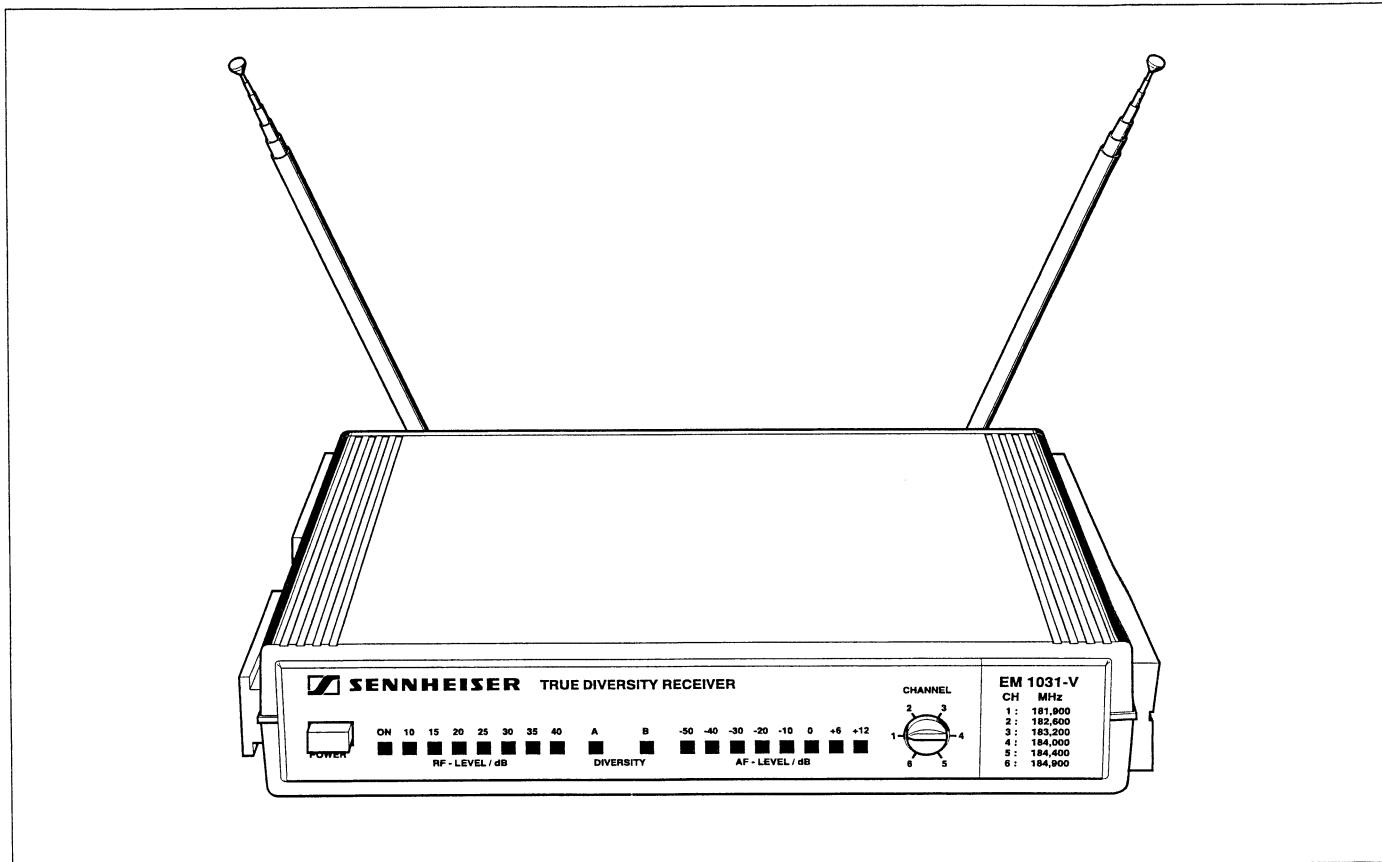


EM 1031-V



KURZBESCHREIBUNG

Leistungsfähiger und kompakter True-Diversity-Empfänger mit hohem Bedienungskomfort. Geeignet für den Betrieb mit den Handsendern BF 1081-V / SKM 1032-VHF und den Taschen sendern BF 1083-V / SK 2032-VHF.

MERKMALE

- Störungsfreier Betrieb durch True-Diversity-Technik
- Wirksame Rauschunterdrückung und hohe Dynamik durch HiDynplus
- Vorbereitet für den Einbau in 19" Rack, 1 HE
- Betrieb durch Steckernetzteil oder am 12 V-KFZ-Netz
- Umschaltbar auf 6 Empfangsfrequenzen

BRIEF DESCRIPTION

Compact, powerful and easy-to-operate true diversity receiver. For use with the BF 1081-V / SKM 1032-VHF hand-held transmitter or the BF 1083-V / SK 2032-VHF body-pack transmitter.

FEATURES

- True diversity receiver ensures reliable operation
- HiDynplus noise suppression system gives excellent dynamic range
- Suitable for 19" rack installation, 1 U high
- Power supply via plug-in mains unit or external 12 V DC
- Switchable to 6 frequencies

Sicherheitsvorschriften / Safety requirements/ Prescrizioni di sicurezza / Prescriptions de sécurité / Prescripciones de seguridad

Deutsch

Achtung: Bei Eingriffen in das Gerät sind die Sicherheitsvorschriften nach VDE 701 (reparaturbezogen) bzw. VDE 0860 / IEC 65 (gerätebezogen) zu beachten !



Bauteile nach IEC- bzw. VDE-Richtlinien ! Im Ersatzfall nur Teile mit gleicher Spezifikation verwenden !

MOS - Vorschriften beim Umgang mit MOS - Bauteilen beachten !

English

Attention: Please observe the applicable safety requirements according to VDE 701 (concerning repairs) and VDE0860 / IEC 65 (concerning type of product) !



Components to IEC or VDE guidelines ! Only use components with the same specifications for replacement !

Observe MOS components handling instructions when servicing !

Italiano

Attenzione: Osservarne le corrispondenti prescrizioni di sicurezza VDE 701 (concernente servizio) e VDE 0860 / IEC 65 (concernente il tipo di prodotto) !



Componenti secondo le norme VDE risp. te IEC ! In caso di sostituzione impiegare solo componenti con le stesse caratteristiche.

Osservare le relative prescrizioni durante, lavori con componenti MOS !

Français

Attention: Prière d'observer les prescriptions de sécurité VDE701 (concernant les réparations) et VDE 0860 / IEC 65 (concernant le type de produit) !

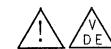


Composants répondant aux normes VDE ou IEC. Les remplacer uniquement par des composants ayant les mêmes spécifications.

Lors de la manipulation des circuits MOS, respecter les prescriptions MOS !

Español

Atención: Recomendamos las normas de seguridad VDE u otras normas equivalentes, por ejemplo: VDE 701 para reparaciones, VDE 0860 / IEC 65 para aparatos !



Componentes que cumplen las normas VDE / IEC. En caso de sustitución, emplear componentes con idénticas especificaciones !

Durante la reparacion observar las normas sobre componentes MOS !

USA & Canada

Attention: This set can only be operated from AC mains of 120V / 60Hz. Also observe the information given on the rear of the set !



CAUTION: For continued protection against risk of fire replace only with same type fuses!

CAUTION: To reduce the risk of electric shock, do not remove cover (or back), no user-serviceable parts inside, refer servicing to qualified service personnel.



Components to safety guidelines (IEC / U.L.) ! Only use components with the same specifications for replacement !

Observe by checking leakage-current or resistance measurement that the exposed parts are acceptably insulated from the supply circuit.

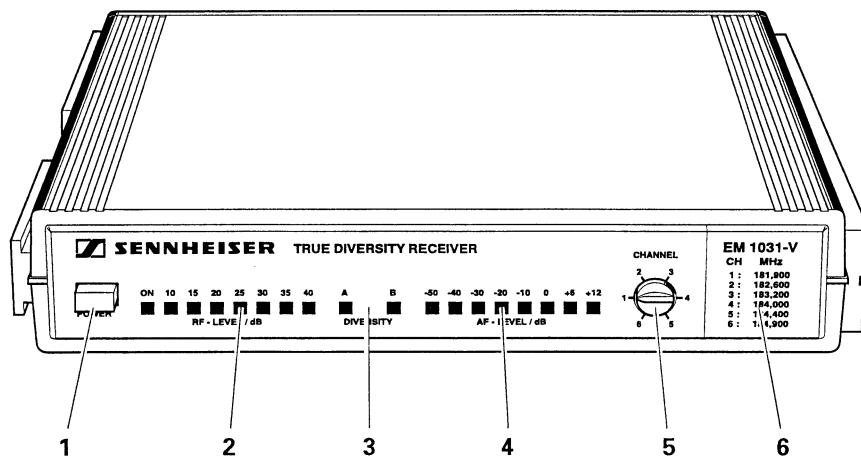
Observe MOS components handling instructions when servicing !

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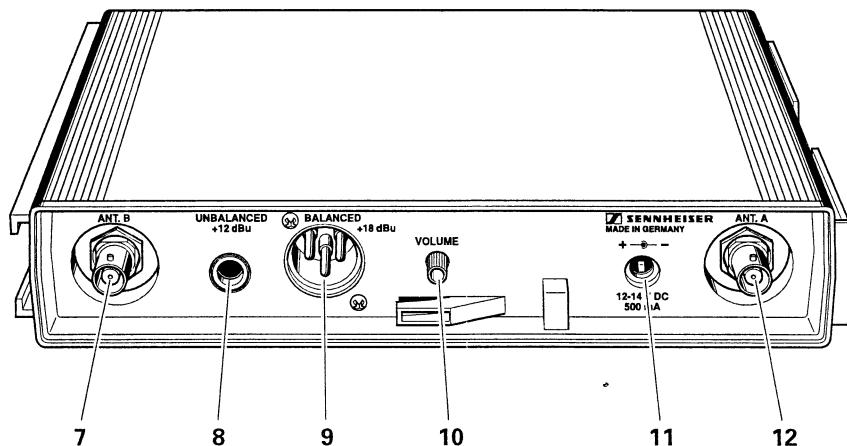
1 BEDIENUNGSELEMENTE

1 OPERATING ELEMENTS



- 1 EIN / AUS - Schalter (POWER)
- 2 Anzeige des HF - Pegels (RF - LEVEL)
- 3 Anzeige des aktiven Diversity - Kanals (DIVERSITY)
- 4 Anzeige des Tonsignalpegels (AF - LEVEL)
- 5 Kanalwahlschalter (CHANNEL 1 - 6)
- 6 Typenschild mit Kanal und Frequenzangabe

- 1 ON / OFF switch (POWER)
- 2 RF level indicator (RF - LEVEL)
- 3 Indicator showing the active diversity channel (DIVERSITY)
- 4 AF level indicator (AF - LEVEL)
- 5 Channel selector (CHANNEL 1 - 6)
- 6 Type plate with channel and frequency



- 7 Antenneneingang B für Diversity - Betrieb (BNC)
- 8 NF - Ausgang, unsymmetrisch, 6,3 mm ø Klinke (LINE)
- 9 NF - Ausgang, symmetrisch, XLR - 3
- 10 Einstellung NF - Ausgangspegel (wirkt auf beide Ausgänge)
- 11 Anschlußbuchse für Stromversorgung (Steckernetzteil)
- 12 Antenneneingang A für Diversity - Betrieb (BNC)

- 7 Antenna connector B for diversity operation (BNC)
- 8 AF output, unbalanced, 6.3 mm jack (LINE)
- 9 AF output, balanced, XLR - 3
- 10 Volume control (for both outputs)
- 11 DC input socket for connecting the plug-in mains unit
- 12 Antenna connector A for diversity operation (BNC)

2 TECHNISCHE DATEN

Empfänger	2 Kanal Diversity, Superhet
Empfangsfrequenzen	VHF-Bereich 138 - 260 MHz (4 Bereiche)
Schaltbandbreite	max. 7 MHz
Kanäle	6, umschaltbar
Empfindlichkeit (90 dB Geräuschspannungsabstand)	< 5 µV
Modulation	FM
Deemphasis	50 µs
Nennhub bei 1 kHz	± 40 kHz
Spitzenhub bei 1 kHz	± 56 kHz
Zwischenfrequenz	10,7 MHz
Ausgang symm. XLR - 3 (bei Spitzenhub)	5 V _{eff} einstellbar an 1000 Ω
Ausgang unsym., 6,3 mm ø (bei Spitzenhub)	2,5 V _{eff} einstellbar an 1000 Ω
Rauschunterdrückungssystem	HiDynplus
Geräuschspannungsabstand	116 dB (A)
Klirrfaktor (1 kHz und Nennhub)	< 1 %
Übertragungsbereich	40 - 20000 Hz
Rauschsperrre	2,0 µV
Abmessungen in mm	213 x 145 x 44
Gewicht	ca. 700 g
Steckernetzteil	120 / 230 / 240 V AC ± 10 %

2 TECHNICAL DATA

Receiver	2-channel diversity superheterodyne
Frequencies	VHF band 138 - 260 MHz (4 ranges)
Switching bandwidth	7 MHz max.
Channels	6, switchable
Sensitivity (90 dB Signal-to-noise ratio)	< 5 µV
Modulation	FM
Deemphasis	50 µs
Nominal deviation at 1 kHz	± 40 kHz
Peak deviation at 1 kHz	± 56 kHz
Intermediate frequency	10.7 MHz
Output, balanced, XLR - 3 (at peak deviation)	5 V _{eff} , adjustable at 1000 Ω
Output, unbalanced, 6.3 mm jack (at peak deviation)	2.5 V _{eff} , adjustable at 1000 Ω
Comander	HiDynplus
Signal-to-noise ratio	116 dB (A)
THD (1 kHz and nominal deviation)	< 1%
Frequency range	40 - 20,000 Hz
Squelch	2.0 µV
Dimension in mm	213 x 145 x 44
Weight	approx. 700 g
Plug-in mauns unit	120 / 230 / 240 V AC ± 10 %

3 ALLGEMEINES

3.1 INHALT DER SERVICE-ANLEITUNG

Auf geeigneten Meßplätzen kann die Reparatur der Leiterplatten bis auf Bauteilebene erfolgen. Detaillierte Reparaturanleitungen befinden sich in den Service-Hinweisen und der Prüf- und Abgleichsanleitung.

Die Service-Anleitung vermittelt das entsprechende Wissen zur Fehlerlokalisierung und Reparatur des EM 1031-V.

3.2 SERVICE-KONZEPT

3.2.1 Leiterplatte

Die Leiterplatte des EM 1031-V ist als 2-seitig kupferkaschierte Platine aufgebaut und kann durch einen unsachgemäßen Reparaturversuch irreparabel beschädigt werden.

3.2.2 Service-Anleitung

Die Service-Anleitung soll dem Techniker die Möglichkeit bieten, die wichtigsten Reparatur- und Abgleicharbeiten ausführen zu können.

Die Service-Anleitung kann im Bedarfsfall auch dem Kunden ausgehändigt werden.

3.2.3 SMD (Surface Mounted Devices)

Die Leiterplatten des EM 1031-V sind weitgehend mit Chip-Elementen (SMD) bestückt. Sollte beim Hantieren mit den Baugruppen ein SMD mechanisch zerstört werden, ist es erforderlich, dieses Bauelement zu ersetzen.

SMD werden direkt auf die dafür vorgesehenen Lötfächen gelötet. Hierfür besitzen sie lötfähige Stirnkontaktierungen, die weitgehend hitzeunempfindlich sind.

Zum Auswechseln ist folgendes Werkzeug erforderlich: Neben einer Pinzette und einem normalen temperaturgeregelten Löt-kolben (z. B. Weller mit 0,8 mm Flachkopflötspitze PT-H 7 oder 0,8 mm Langkopflötspitze PT-K 7) sollten noch ein absolut rückschlagfreies Absauggerät und 1,2 mm Entlötlitzte vorhanden sein. Sinnvoll ist eine Arbeitslupe.

Die Lötzeit ist so kurz wie möglich zu halten, damit die Leiterbahnen nicht beschädigt werden. Besonders beim Auslöten der Bauteile ist darauf zu achten, daß die Leiterbahnen nicht abgehoben werden. Danach ist die Auflagefläche der Bauteile von Lötresten zu säubern. Um mechanische Spannungen in den Bauteilen zu vermeiden, sollte man erst nach dem Erkalten der ersten Lötstelle die gegenüberliegende Seite anlöten.

Eine Wiederverwendung eines bereits ausgelötzten Chip-Bauelementes ist nicht zulässig. Dies gilt auch dann, wenn es offensichtlich fehlerfrei ist, da durch die mechanische Beanspruchung beim Ein- und Auslöten eine Beschädigung nicht ausgeschlossen werden kann.

Die SMD werden als Ersatzteile in Packeinheiten von je 50 Stück geliefert. Die Lagerbehälter müssen verwechslungssicher gekennzeichnet sein, da nur dadurch eine Unterscheidung der Bauteile möglich ist.

3 GENERAL

3.1 CONTENTS OF THIS SERVICE MANUAL

Special tools and test equipment allow the modules to be easily repaired up to the lowest level, i.e. their individual components. Detailed instructions are given in the service hints as well as in the test and alignment instructions.

The present service manual shall provide the service engineer with important information required to find faults and to repair the EM 1031-V.

3.2 SERVICING

3.2.1 Printed circuit board

The PCB incorporated into the EM 1031-V is a double-sided printed circuit board which can be accidentally damaged through improper handling or repair.

3.2.2 Service manuals

The present document shall help the service engineer to accomplish the most important maintenance and repair work.

The service manual may be handed to customers, if need be.

3.2.3 SMD (Surface Mounted Devices)

The PCBs incorporated into the EM 1031-V chiefly include Surface Mounted Devices (SMD). Should one SMD be accidentally damaged, replace the defective component with a new one.

SMDs are to be soldered to the surface provided for this purpose. They feature solderable contacts which are relatively insensitive to heat.

Tools required to replace SMDs: tweezers, temperature-controlled soldering iron (e.g. Weller with 0.8 mm flat headed soldering tip PT-H 7 or 0.8 mm oblong soldering tip PT-K 7), blow-back proof unsoldering set, 1.2 mm unsoldering wire. It is recommendable to use magnifying glasses.

Minimize the soldering time in order not to damage the PCB. Be careful not to damage any tracks when unsoldering the components to be replaced. Clean the surface. Wait until the first soldered joint has cooled down before starting to solder the opposite side. This serves to avoid stress built-up in the components.

Do not reuse unsoldered components, even if they seem to be faultless. Mechanical damage, possibly caused by soldering or unsoldering some components, cannot be excluded.

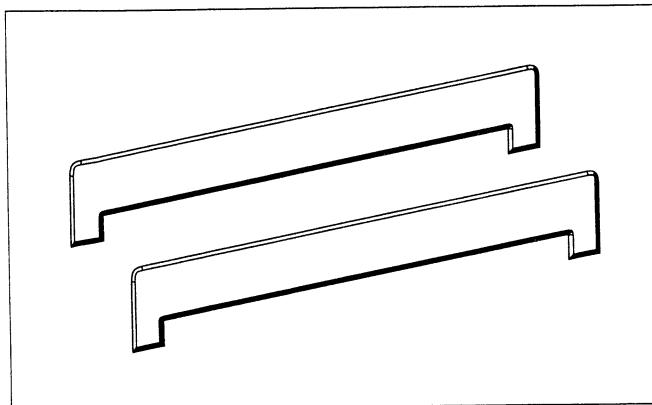
SMDs are available as spare parts, 50 pcs. packaged in a poly bag. Containers or packages should be marked in order to make the components distinguishable from each other.

4 MESSGERÄTE UND PRÜFMITTEL

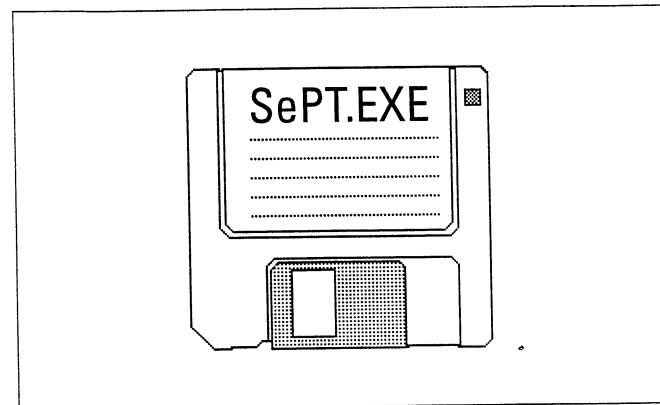
- 1 Spektrum - Analysator (z.B. Advantest R 4131 A)
- 1 Tracking - Generator (z.B. Advantest TR 4131 A)
- 1 HF - Signalgenerator (z.B. Rohde & Schwarz SMS 2)
- 1 Frequenzmeßgerät (z.B. HEB Dicount)
- 1 NF - Multimeter (z.B. Sennheiser UPM 550-1)
- 1 Oszilloskop (z.B. Hameg 605)
- 1 Voltmeter $R_i \geq 1 M\Omega / V$ (z.B. Thandar TM 351)
- 1 Amperemeter (z.B. Thandar TM 351)
- 1 Netzgerät 0 - 20 V / 1 A
- 1 IBM-kompatibler PC (mit Windows ab V3.1)

4.1 SPEZIELLE SERVICE-HILFSMITTEL

Spezialwerkzeug zur Gehäusedemontage (Bestell-Nr. 70503)
Service-Adapter M-EM1046 PH (Bestell-Nr. 49922)
Service-Adapter M-SePT1 PH (Bestell-Nr. 70501)
Programmier-Software SePT.EXE (Bestell-Nr. 70502)
Programmierbuchse J5 (Bestell-Nr. 45263)



Spezialwerkzeug zur Gehäusedemontage (Bestell-Nr. 70503)
Tool for disassembling the housing (spare part no. 70503)



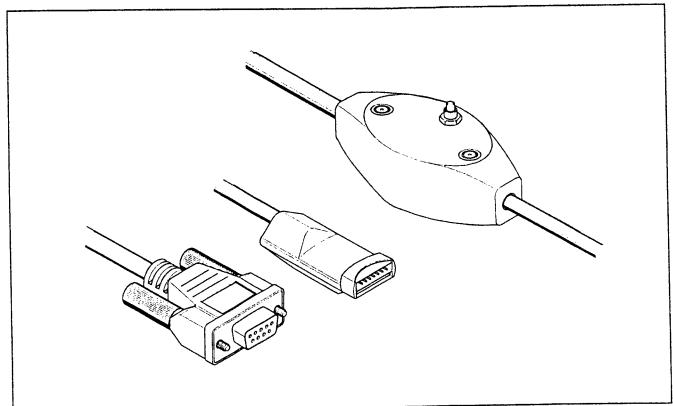
Programmier-Software SePT.EXE (Bestell-Nr. 70502)
SePT.EXE programming tool (spare part no. 70502)

4 MEASURING AND TEST EQUIPMENT

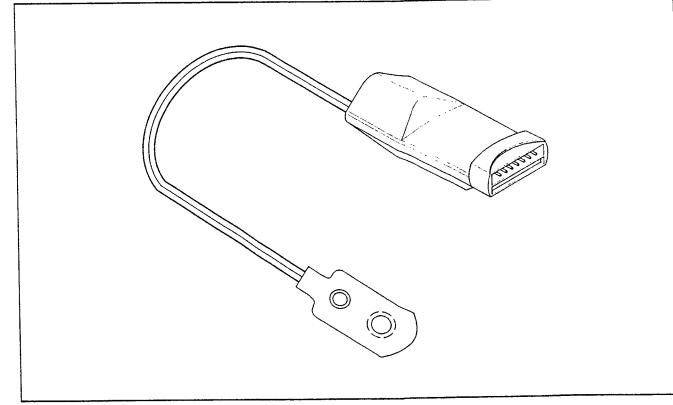
- 1 Spectrum analyser (e.g. Advantest R 4131 A)
- 1 Tracking generator (e.g. Advantest TR 4131 A)
- 1 RF signal generator (e.g. Rohde & Schwarz SMS 2)
- 1 Frequency meter (e.g. HEB Dicount)
- 1 AF multimeter (e.g. Sennheiser UPM 550-1)
- 1 Oscilloscope (e.g. Hameg 605)
- 1 Voltmeter $R_i \geq 1 M\Omega / V$ (e.g. Thandar TM 351)
- 1 Ammeter (e.g. Thandar TM 351)
- 1 Power supply unit 0 - 20 V / 1A
- 1 IBM compatible PC (with Windows, version 3.1 or later)

4.1 SPECIAL SERVICE TOOLS

Tool for disassembling the housing (spare part no. 70503)
M-EM 1046 PH service adaptor (spare part no. 49922)
M-SePT1 PH service adaptor (spare part no. 70501)
SePT.EXE programming tool (spare part no. 70502)
J5 programming connector (spare part no. 45263)



Service-Adapter M-EM1046 PH (Bestell-Nr. 49922)
M-EM 1046 PH service adaptor (spare part no. 49922)



Service-Adapter M-SePT1 PH (Bestell-Nr. 70501)
M-SePT1 PH service adaptor (spare part no. 70501)

4.2 SePT1 SERVICE SET

All new service tools are available as a complete set (spare part no. 70497). This set contains:

- 1 x M-SePT1 PH service adaptor
- 1 x SePT.EXE programming tool
- 10 x J 5 programming connector
- 1 x software registration card
- 1 x installation instructions

4.2 SERVICE-SET SePT1

Sämtliche neuen Service-Hilfsmittel sind auch komplett als Service-Set SePT1 (Bestell-Nr. 70497) erhältlich. Das Set besteht aus:

- 1 x Service-Adapter M-SePT1 PH
- 1 x Programmier-Software SePT.EXE
- 10 x Programmierbuchse J5
- 1 x Software-Registrationskarte
- 1 x Installationshinweise

5 SERVICE HINWEISE

5.1 ALLGEMEINES ÜBERPRÜFEN

Zur Eingrenzung von Fehlern empfiehlt es sich den Empfänger EM 1031-V mit einem funktionsfähigen Sender (BF 1081-V oder SKM 1032-VHF) zu überprüfen. Hierzu wird der Handsender wie in der Praxis betrieben. Der Empfänger wird betriebsbereit gemacht (Steckernetzteil einstecken, Empfänger einschalten, Kanalwahlschalter einstellen, Verstärker am Ausgang anschließen und Signal abhören). Im Praxistest (Betrieb ohne Antenne) wird der Empfänger nun auf folgende Merkmale überprüft:

1. Klang (Modulation, Verzerrungen)
2. Rauschen (Empfindlichkeit, Reichweite ca. 20 m)
3. Diversityverhalten (Sender im Abstand von ca. 3 Metern zwischen Antenneneingängen bewegen)
4. Funktion der Bedienelemente (Volume, Channel)
5. Wackelkontakte (Abklopfen)

5.2 EMPFANGSEIGENSCHAFTEN ÜBERPRÜFEN

Bei Empfängern die vermutlich eine unzureichende Empfindlichkeit haben (mangelnde Reichweite) ist dieses mit Hilfe eines HF-Signalgenerators zu überprüfen. Hierzu ist der HF-Signalgenerator (HF-Trägerfrequenz auf Kanal 3, HF-Ausgangsspannung 1 mV, Frequenzhub 40 kHz, Modulation 1 kHz) an Antenneneingang A oder B anzuschließen. Der Empfänger wird nun betriebsbereit gemacht (Steckernetzteil einstecken, Empfänger einschalten, Kanalwahlschalter einstellen (Kanal 3), Verstärker am Ausgang anschließen und Signal abhören). Das Testsignal ist jetzt hörbar. Nun wird die HF-Ausgangsspannung des HF-Signalgenerators bis auf ca. 5 µV verkleinert. Ist das Testsignal nun immer noch zu hören, ist die Empfindlichkeit des Empfängers EM 1031-V ausreichend. Wird die HF-Ausgangsspannung weiterhin vermindert, schaltet der Empfänger bei ca. 2,0 µV stumm (Rauschsperre).

5 SERVICE INSTRUCTIONS

5.1 GENERAL TEST

Test the EM 1031-V receiver with an operational transmitter (e.g. BF 1081-V or SKM 1032-VHF) to narrow down the possible causes of a fault. Operate the transmitter as usually. Put the receiver into operation (connect the plug-in mains unit, switch the receiver on, select a channel, connect a monitoring amplifier at the receiver output and listen to the signal). The receiver is operated without antenna. Now check the following:

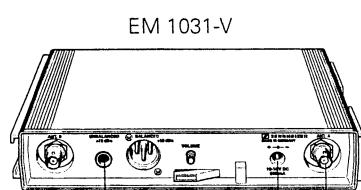
1. Sound quality (modulation, distortions)
2. Noise (sensitivity, range approx. 20 m)
3. Diversity operation (move the transmitter between the antenna inputs at a distance of approx. 3 m)
4. Functioning of the operating elements (volume control, channel selector switch)
5. Loose contacts (by knocking at the housing)

5.2 RECEPTION TEST

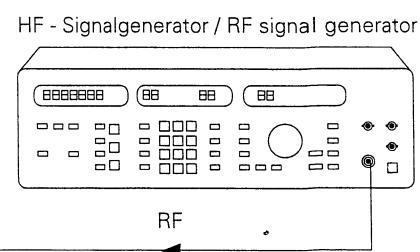
If the sensitivity of the receiver is probably too low (range is reduced) test the sensitivity with an RF signal generator. Connect the RF signal generator to antenna input A or B (channel 3 carrier frequency, RF output voltage 1 mV, deviation 40 kHz, modulation 1 kHz). Put the EM 1031-V receiver into operation (i.e. connect the plug-in mains unit, switch the receiver on, select channel 3, connect a monitoring amplifier at the receiver output). You can hear the test signal. Reduce the RF output voltage to approx. 5 µV. If you can still hear the test signal, the receiver's sensitivity is sufficient. If you reduce the output voltage still further, the receiver will switch to mute at approx. 2.0 µV (squelch).

MESSAUFBAU

TEST SET-UP



Steckernetzteil, 12 - 14 VDC, 600 mA
Plug-in mains unit, 12 - 14 VDC, 600 mA



HF-Trägerfrequenz Kanal 3,
HF-Ausgangsspannung 1 mV,
Frequenzhub 40 kHz,
Modulation 1kHz

RF carrier frequency channel 3,
RF output voltage 1 mV,
Deviation 40 kHz,
Modulation 1kHz

5.3 ABGLEICH UND FEHLERSUCHE

Zu Abgleich und Reparatur ist der Empfänger EM 1031-V zu demontieren.

1. Gehäuse öffnen; dazu mit Spezialwerkzeug (Bestell-Nr. 70503) Chassis entriegeln und nach hinten aus dem Gehäuse ziehen.
2. Schrauben des Abschirmdeckels lösen und entfernen.
3. Abschirmdeckel von dem Abschirmprofil entnehmen.
4. Bei Neuabgleich sind die sechs Widerstandstrimmer in Mittelstellung zu bringen.



Max. Links



Mittelstellung



Max. Rechts



toter Bereich

Achtung: Die Widerstandstrimmer haben keinen Anschlag. Beim Abgleich ist darauf zu achten, daß Einstellungen nicht am Rande oder sogar im "toten Bereich" vorgenommen werden.

5. Empfänger betriebsbereit machen; dazu Steckernetzteil oder Netzgerät (12 VDC, Strombegrenzung 600 mA) an Stromversorgungsbuchse J2 anschließen.
6. Empfänger mit Betriebsschalter S2 einschalten.
7. Kanalwahlschalter S1 auf Kanal in der Mitte Schaltbandbreite schalten (in der Regel Kanal 3).
8. HF-Signalgenerator wie in der Prüf- und Abgleichsanweisung beschrieben an Antenneneingang B anschließen.

Grundeinstellungen des HF-Signalgenerators:

HF-Trägerfrequenz: wie 7.,

HF-Ausgangsspannung: 1 mV,

Frequenzhub: 40 kHz,

Modulation: 1kHz.

9. NF-Ausgang J4 über hochohmigen Trennübertrager (erdfrei symmetrisch) mit NF-Meßgerät und Oszilloskop verbinden (XLR-Buchse J4, Pin2 nach Pin3). Ist kein Trennübertrager vorhanden, kann die halbe Ausgangsspannung unsymmetrisch (XLR-Buchse J4, Pin2 nach Pin1, oder Pin3 nach Pin1) gemessen werden.
10. Prüf- und Abgleichsanweisung durchführen. Bei stark abweichenden Meßwerten kann die Leiterplatte unter Zuhilfenahme des Stromlaufplanes repariert werden.

6 FREQUENZÄNDERUNGEN

6.1 PROGRAMMIERUNG

1. Gehäuse öffnen; dazu mit Spezialwerkzeug (Bestell-Nr. 70503) Chassis entriegeln und nach hinten aus dem Gehäuse ziehen.
2. Auf der Empfänger-Leiterplatte ist Programmierbuchse J5 (Bestell-Nr. 45263) zu bestücken.
3. Empfänger betriebsbereit machen; dazu Steckernetzteil oder Netzgerät (12 VDC, Strombegrenzung 600 mA) an Stromversorgungsbuchse J2 anschließen.
4. Empfänger mit Betriebsschalter S2 einschalten.
5. Service-Adapter M-EM 1046 PH (Bestell-Nr. 49922) am freien COM-Port des IBM-kompatiblen PC's kontaktieren.
6. Service-Adapter M-SePT1 PH (Bestell-Nr. 70501) am offenen Ende des Service-Adapters M-EM 1046 PH kontaktieren.
7. Service-Adapter M-SePT1 PH auf Programmierbuchse J5 der Empfänger-Leiterplatte stecken.

5.3 ALIGNMENT AND TROUBLESHOOTING

For alignment or repairs the EM 1031-V receiver has to be disassembled.

1. For opening the housing, use the special tool (spare part no. 70503) to unlatch the chassis and pull it out of the housing.
2. Remove the screws from the lid of the RF screen.
3. Remove the lid.
4. If the receiver has to be re-aligned, set the six trimming resistors to centre position.



left max.



centre position



right max.



dead band

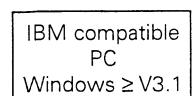
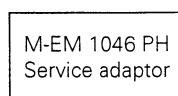
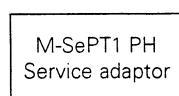
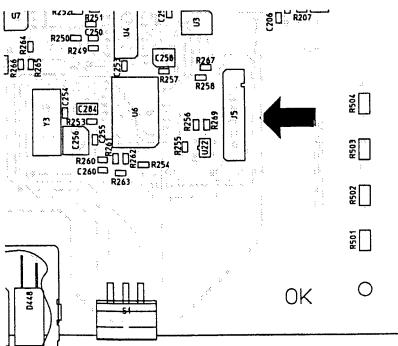
N.B.: The trimming resistors do not have an end stop. When aligning, make sure that they are not near or in the dead band.

5. To put the receiver into operation, connect the plug-in mains unit or the power supply unit (12 VDC, current limited to 600 mA) to the J2 mains socket.
 6. Switch the receiver on with S2 (on/off switch).
 7. With switch S1, select the channel at the middle of the receiver's switching bandwidth (usually channel 3).
 8. Connect the RF signal generator to antenna socket B as described in the test and alignment instructions.
- Adjustments on the RF signal generator:*
- RF carrier frequency as in 7.,
RF output voltage 1 mV,
deviation 40 kHz,
modulation 1 kHz.
9. Connect the AF output J4 via a high-resistance isolating transformer (floating, balanced) to an AF measuring device and an oscilloscope (XLR socket J4, pin2 to pin3). If you do not have an isolating transformer, you can measure half the output voltage unbalanced (XLR socket J4, pin2 to pin1 or pin3 to pin1).
 10. Carry out test and alignment instructions. If the measured values deviate strongly from the required values, the PCB should be repaired using the circuit diagram.

6 CHANGING THE FREQUENCIES

6.1 PROGRAMMING

1. For opening the housing, use the special tool (spare part no. 70503) to unlatch the chassis and pull it out of the housing.
2. Mount the J5 programming connector (spare part no. 45263) onto the receiver PCB.
3. To put the receiver into operation, connect the plug-in mains unit or the power supply unit (12 VDC, current limited to 600 mA) to the J2 mains socket.
4. Switch the receiver on with S2.
5. Connect the M-EM 1046 PH service adaptor (spare part no. 49922) to the unused COM port of the IBM compatible PC.
6. Connect the M-SePT1 PH service adaptor (spare part no. 70501) to the other end of the M-EM 1046 PH service adaptor.
7. Connect the M-SePT1 PH service adaptor to the J5 programming connector on the receiver PCB.



SePT.EXE
programming tool

8. Programm SePT.EXE unter Windows starten.
 9. Die Daten des EEPROM's werden ausgelesen und im Programmfenster angezeigt.
 10. Die neuen Kanalfrequenzen können nun eingegeben werden. Das Programm SePT.EXE unterstützt die Online-Hilfe. Mit der "Help"-Funktion können somit Informationen über die Bedienung der Programm-Software abgerufen werden.
 11. Nach dem Programmervorgang fragt das Programm SePT.EXE automatisch den Inhalt des EEPROM's ab.
 12. Nach dem Überprüfen des gespeicherten Inhaltes kann der Service-Adapter M-SePT1 PH von der Programmierbuchse J5 entfernt werden.
 13. Befinden sich die programmierten Frequenzen *innerhalb der bisherigen Schaltbandbreite*, sind lediglich die Empfangsfrequenzen und Spezifikationen des Empfängers zu überprüfen.
Befinden sich die programmierten Frequenzen *außerhalb der Schaltbandbreite*, aber innerhalb der Grenzen des bestückten HF-Teils (RF-Amplifier, VCO, Buffer, µC-Range), ist ein Neuabgleich laut Prüf- und Abgleichsanweisung erforderlich.
Befinden sich die programmierten Frequenzen *außerhalb der Grenzen des bestückten HF-Teils* (RF-Amplifier, VCO, Buffer, µC-Range), sind die entsprechenden Bauteilvariablen zu ersetzen. Anschließend ist ein Neuabgleich laut Prüf- und Abgleichsanweisung erforderlich.
 14. Nach der Modifikation des Empfängers wird der Deckel des Abschirmgehäuses verschraubt und das Empfängerchassis in das Gehäuse geschoben und verriegelt. Dabei ist auf den ordnungsgemäßen Sitz der Knöpfe von S1 und S2 zu achten.
 15. Nach der Endmontage ist der Empfänger mit einem entsprechenden Sender zu überprüfen.
 8. Start SePT-EXE under Windows.
 9. SePT-EXE reads in and displays the receiver's EEPROM data.
 10. You can now enter new channel frequencies. SePT.EXE has online help. For information on how to use the software simply choose the "Help" command.
 11. After programming, SePT.EXE automatically displays the EEPROM data so that you can check whether they are correct.
 12. Remove the M-SePT1 PH service adaptor from the J5 programming connector.
 13. If the programmed frequencies are *within the previous switching bandwidth*, you only have to check receiving frequencies and receiver data.
If the programmed frequencies lie *outside the switching bandwidth* but are within the possible bandwidth determined by the components of the RF section (RF amplifier, VCO, buffer, microcontroller), you have to re-align the receiver according to the test and alignment instructions.
If the programmed frequencies are *outside the total bandwidth determined by the components of the RF section* (RF amplifier, VCO, buffer, microcontroller), you have to replace the components in question. Then align the receiver according to the test and alignment instructions.
 14. When you have changed the receiving frequencies, screw the lid of the RF screen back on. Insert the chassis into the housing and latch. Make sure that S1 and S2 are in correct position.
 15. Check the receiver with a suitable transmitter.

6.2 FUNKTIONSÜBERPRÜFUNG

Empfänger EM 1031-V montieren. Funktionsüberprüfung des Empfängers mit einem funktionsfähigen Sender (BF 1081-V oder SKM 1032-VHF). Hierzu wird der Handsender wie in der Praxis betrieben. Der Empfänger EM 1031-V wird betriebsbereit gemacht (Steckernetzteil und Antennen einstecken, Empfänger einschalten, Kanalwahlschalter einstellen, Verstärker am Ausgang anschließen und Signal abhören). Im Praxistest wird der Empfänger nun auf folgende Merkmale überprüft:

1. Klang (Modulation, Verzerrungen)
 2. Rauschen (Empfindlichkeit, Reichweite ca. 20 m)
 3. Diversityverhalten (Sender im Abstand von ca. 3 Metern zwischen Antenneneingängen bewegen)
 4. Funktion der Bedienelemente (Volume, Channel)
 5. Wackelkontakte (Abklopfen)

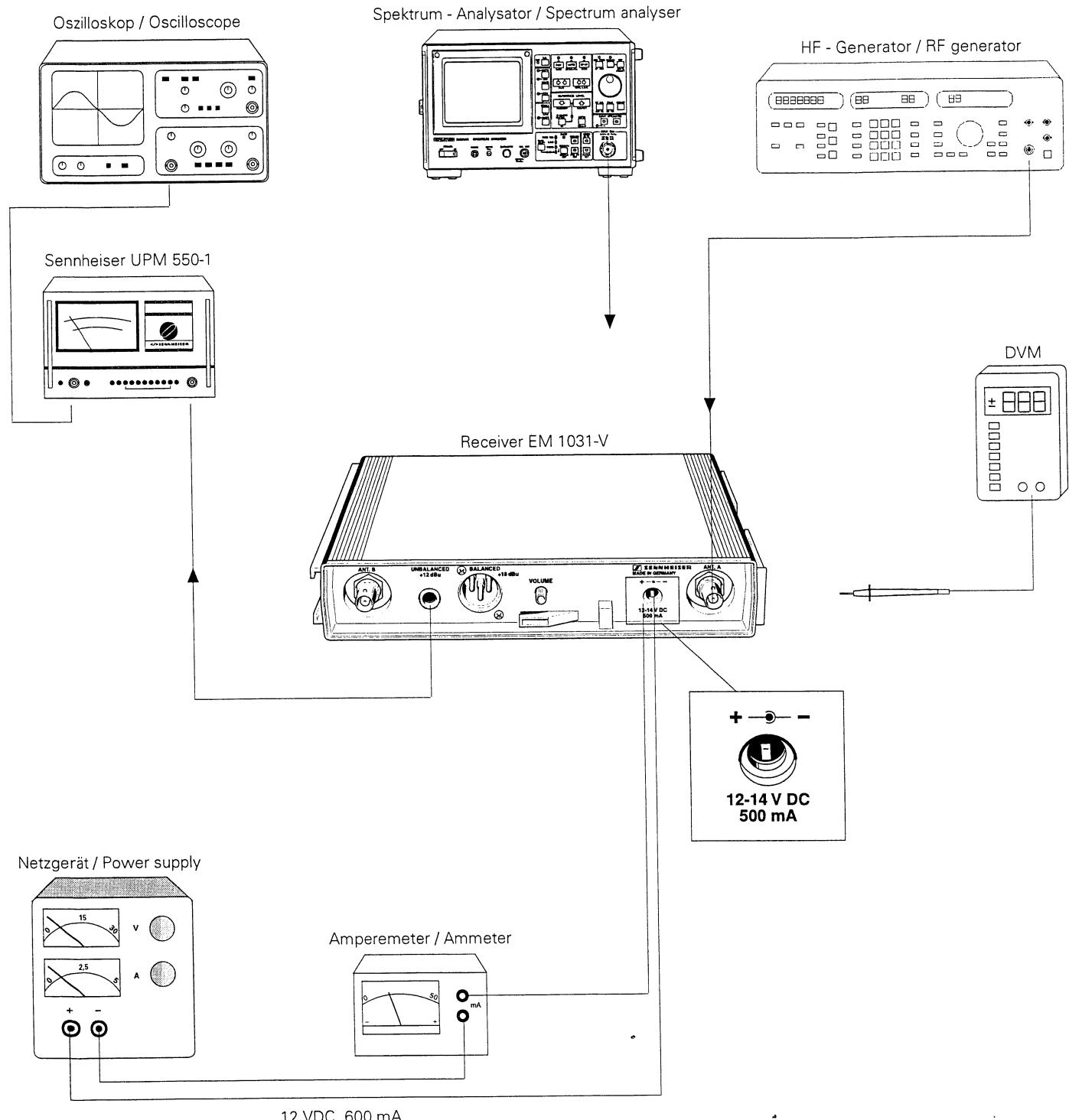
6.2 FUNCTIONAL TEST

Reassemble the EM 1031-V receiver. Test it with a suitable transmitter (e.g. BF 1081-V or SKM 1032-VHF). Operate the transmitter as usually. Put the EM 1031-V receiver into operation (connect the plug-in mains unit, insert the antennæ, switch the receiver on, select a channel, connect a monitoring amplifier at the receiver output and listen to the signal). Now check the following:

1. Sound quality (modulation, distortions)
 2. Noise (sensitivity, range approx. 20 m)
 3. Diversity operation (move the transmitter between the antenna inputs at a distance of approx. 3 m)
 4. Functioning of the operating elements (volume control, channel selector switch)
 5. Loose contacts (by knocking at the housing)

7 PRÜF- UND ABGLEICHANWEISUNG

7.1 MESSAUFBAU



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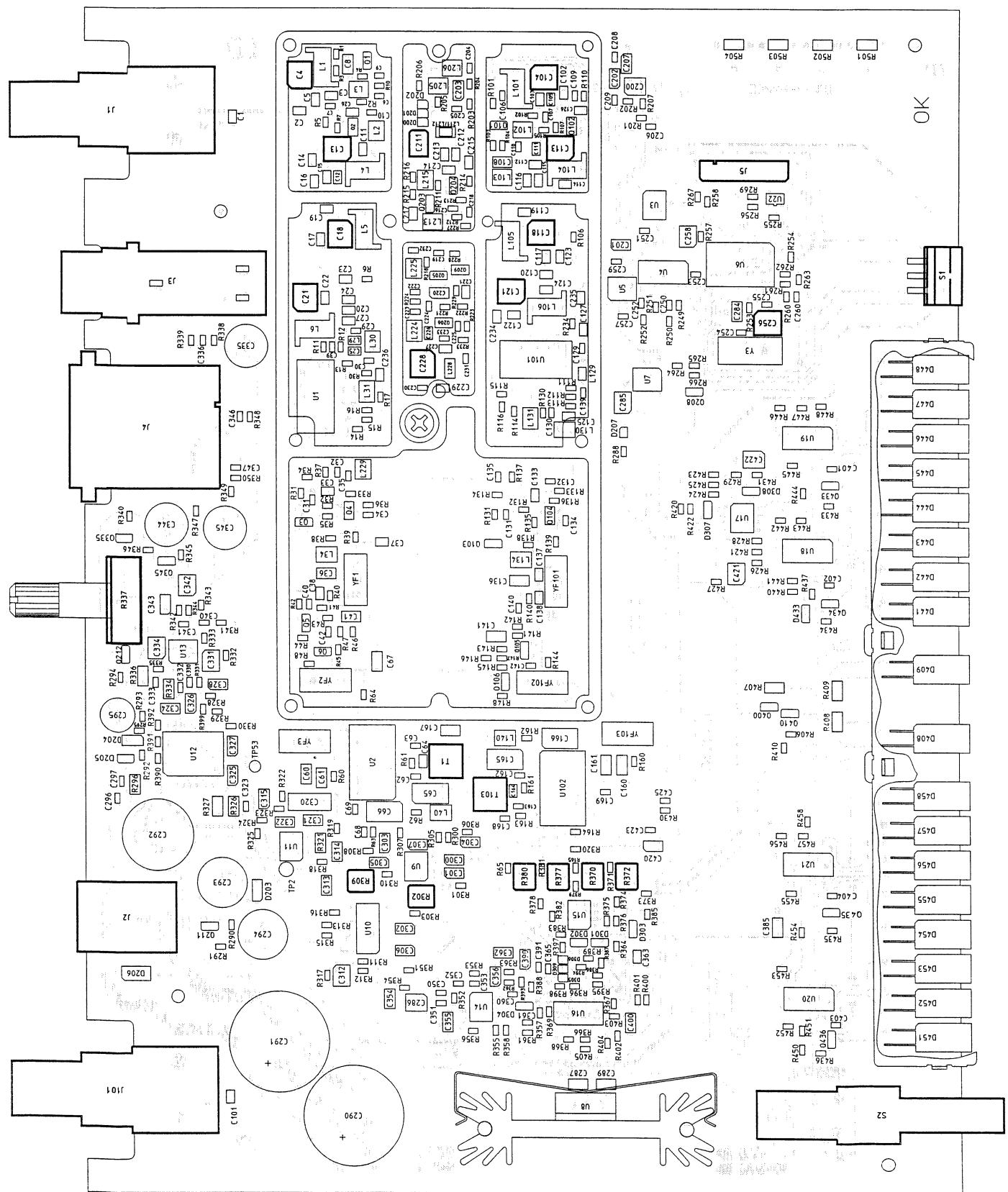
7 TEST AND ALIGNMENT INSTRUCTIONS

7.1 TEST SET-UP

NOTES:

7.2 ABGLEICHELEMENTE

7.2 ADJUSTER LOCATION



7.3 PRÜF - UND ABGLEICHANWEISUNG

Nr.	Messung, Einstellung	Signal- einspeisung	Vorbereitung, Geräteeinstellung	Meßpunkt	Sollwert	Einsteller	Bemerkungen
1	Stromaufnahme	-	UB: 12 VDC, S2 "ON"; Amperemeter	J2	ca. 350 ± 10 mA		
1.1	Betriebsspannung (+ 11 VDC)	-	DC - Voltmeter	TP35	+ 11 ± 0,2 VDC		
1.2	Betriebsspannung (+ 8 VDC)	-	DC - Voltmeter	TP34	+ 8 ± 0,1 VDC		
1.3	Betriebsspannung (+ 5 VDC)	-	DC - Voltmeter	TP33	+ 5 ± 0,1 VDC		
1.4	Betriebsspannung (- 4 VDC)	-	DC - Voltmeter	TP29	- 4 ± 0,1 VDC		
2	Bereichsgrenzen der Tuning- spannung	-	S1 auf unterste und oberste Empfangs- frequenz schalten; DC - Voltmeter	TP30	- 2,0 ... + 3,8 VDC	C211	Regelsteilheit ca. 1,2 - 2,0 MHz / V
3	1. Oszillator (Pegel)	-	S1 auf mittlere Frequenz des Empfangsbereiches einstellen; Spektrum - Analysator	TP31	max. Pegel, ca. ca. - 15 dBm	C228	
3.1	1. Oszillator (Frequenz)	-	wie 3; Frequenzmeßgerät	TP31	Empfangs- frequenz - ZF (10,7 MHz), Tol. ± 200 Hz	C256	
4	HF - Eingang Kanal B	Tracking-Generator - 10 dBm an J1	Spektrum - Analysator	TP1	B: 7 MHz, ca. - 20 dBm	C4, C13, C18, C21	Mit C13 und C21 Spiegelfallen bei fe - 21,4 MHz auf Minimum (\leq - 80 dBm) abgleichen
4.1	HF - Eingang Kanal A	Tracking-Generator - 10 dBm an J101	Spektrum - Analysator	TP11	B: 7 MHz, ca. - 20 dBm	C104, C113, C118, C121	Mit C113 und C121 Spiegelfallen bei fe - 21,4 MHz auf Minimum (\leq - 80 dBm) abgleichen
5	Demodulator Kanal B	HF-Signalgenerator an J1: Empfangsfrequenz, HF: 1 mV, Hub: 40 kHz, Mod: 1 kHz	NF - Voltmeter, Oszilloskop	J4	max. Pegel	T1	
5.1	NF - Verstärker Kanal B	wie 5	NF - Voltmeter, Oszilloskop	J4	2,9 Veff.	R309	
5.2	Demodulator Kanal B (Feinabgleich)	wie 5.1	Klirrfaktormeßgerät	J4	k < 0,5 %	T1	Eventuell 5.1 wiederholen
5.3	Empfindlichkeit Kanal B	HF-Signalgenerator an J1: Empfangsfrequenz, HF: 1 mV ... 3 µV, Hub: Aus	NF - Voltmeter (A-bewertet, effektiv), Oszilloskop	J4	min. Rauschen, \leq - 71 dBu bei 3 µV		
5.4	Demodulator Kanal A	HF-Signalgenerator an J101: Empfangsfrequenz, HF: 1 mV, Hub: 40 kHz, Mod: 1 kHz	NF - Voltmeter, Oszilloskop	J4	max. Pegel	T103	
5.5	NF - Verstärker Kanal A	wie 5.4	NF - Voltmeter, Oszilloskop	J4	2,9 Veff.	R302	
5.6	Demodulator Kanal A (Feinabgleich)	wie 5.5	Klirrfaktormeßgerät	J4	k < 0,5 %	T103	Eventuell 5.5 wiederholen

5.7	Empfindlichkeit Kanal A	HF-Signalgenerator an J101: Empfangsfrequenz, HF: 1 mV ... 3 µV, Hub: Aus	NF - Voltmeter (A-bewertet, effektiv), Oszilloskop	J4	min. Rauschen, ≤ - 71 dBu bei 3 µV		
6.	Feldstärkeanzeige Kanal A (10 dBµV)	HF-Signalgenerator an J101: Empfangsfrequenz, HF: 3 µV, Hub: 40 kHz, Mod: 1 kHz	Trimmer R380 auf min. drehen	LED Anzeige RF - LEVEL	1. LED leuchtet (D452)	R372	
6.1	Feldstärkeanzeige Kanal A (40 dBµV)	HF: 100 µV, sonst wie 6	-	LED Anzeige RF - LEVEL	7. LED leuchtet (D458)	R370	Abgleich 6 und 6.1 wechselseitig wiederholen, bis LED Anzeige richtig anzeigt
6.2	Feldstärkeanzeige Kanal B (10 dBµV)	HF-Signalgenerator an J1: Empfangsfrequenz, HF: 3 µV, Hub: 40 kHz, Mod: 1 kHz	-	LED Anzeige RF - LEVEL	1. LED leuchtet (D452)	R377	
6.3	Feldstärkeanzeige Kanal B (40 dBµV)	HF: 100 µV, sonst wie 6.2	-	LED Anzeige RF - LEVEL	7. LED leuchtet (D458)	R380	Abgleich 6.2 und 6.3 wechselseitig wiederholen, bis LED Anzeige richtig anzeigt
7	Überprüfung der Empfindlichkeit Kanal B	HF-Signalgenerator an J1: Empfangsfrequenz, HF: 3 µV, Hub: Aus	NF - Voltmeter (A-bewertet, effektiv), Oszilloskop	J4	min. Rauschen < - 71 dBu		
7.1	Überprüfung der Empfindlichkeit an den Frequenzgrenzen Kanal B	wie 7	S1 auf unterste und oberste Empfangsfrequenz schalten; NF - Voltmeter (A-bewertet, effektiv), Oszilloskop	J4	min. Rauschen < - 65 dBu		
7.2	Überprüfung der Empfindlichkeit Kanal A	HF-Signalgenerator an J101: Empfangsfrequenz, HF: 3 µV, Hub: Aus	NF - Voltmeter (A-bewertet, effektiv), Oszilloskop	J4	min. Rauschen < - 71 dBu		
7.3	Überprüfung der Empfindlichkeit an den Frequenzgrenzen Kanal A	wie 7.2	S1 auf unterste und oberste Empfangsfrequenz schalten; NF - Voltmeter (A-bewertet, effektiv), Oszilloskop	J4	min. Rauschen < - 65 dBu		
7.4	Max. Rauschabstand Kanal A	HF: 1 mV, sonst wie 7.3	S1 auf mittlere Frequenz des Empfangsbereiches einstellen; NF - Voltmeter (Fremdspannung)	J4	ca. - 97 dBu		
7.5	Max. Rauschabstand Kanal B	HF-Signalgenerator an J1: sonst wie 7.4	wie 7.4	J4	ca. - 97 dBu		
8	NF - Frequenzgang Kanal B	HF: 1 mV, Hub: 40 kHz, Mod: 400 Hz, sonst wie 7.5	wie 7.5	J4	11,4 dBu (0 dB)		
8.1	NF - Frequenzgang Kanal B	Mod: 30 Hz, sonst wie 8	wie 8	J4	2,9 ... 4,9 dBu (- 6,5... - 8,5 dB)		
8.2	NF - Frequenzgang Kanal B	Mod: 20 kHz, sonst wie 8.1	wie 8.1	J4	- 18,6... - 22,6 dBu (- 30... - 34 dB)		

8.3	NF - Frequenzgang Kanal A	HF-Signalgenerator an J101: HF: 1 mV, Hub: 40 kHz, Mod: 400 Hz; sonst wie 8.2	wie 8.2	J4	11,4 dBu (0 dB)		
8.4	NF - Frequenzgang Kanal A	Mod: 30 Hz; sonst wie 8.3	wie 8.3	J4	2,9 ... 4,9 dBu (- 6,5 ... - 8,5 dB)		
8.5	NF - Frequenzgang Kanal A	Mod: 20 kHz; sonst wie 8.4	wie 8.4	J4	- 18,6 ... - 22,6 dBu (- 30 ... - 34 dB)		
8.6	Klirrfaktor Kanal A	Hub: 56 kHz, Mod: 1 kHz; sonst wie 8.5	Klirrfaktormeßgerät	J4	k < 0,5 %	evtl. mit T103 optimieren	Ab ca. 51 kHz Hub leuchtet die LED "+ 12 dB" der AF - LEVEL Anzeige
8.7	Klirrfaktor Kanal B	HF-Signalgenerator an J1: sonst wie 8.6	Klirrfaktormeßgerät	J4	k < 0,5 %	evtl. mit T1 optimieren	Ab ca. 51 kHz Hub leuchtet die LED "+ 12 dB" der AF - LEVEL Anzeige
9	Pegelgesteuerte Rauschsperrre Kanal B	HF: ca. 2,0 µV; sonst wie 8.7	NF - Voltmeter	J4	Ausgang schaltet stumm		
9.1	Pegelgesteuerte Rauschsperrre Kanal A	HF-Signalgenerator an J1: HF: ca. 2,0 µV; sonst wie 9	NF - Voltmeter	J4	Ausgang schaltet stumm		
9.2	Rauschgesteuerte Rauschsperrre Kanal A	HF: 1 mV; Hub: ca. 60 kHz, Mod: 50 kHz; sonst wie 9.1	NF - Voltmeter	J4	Ausgang schaltet stumm		

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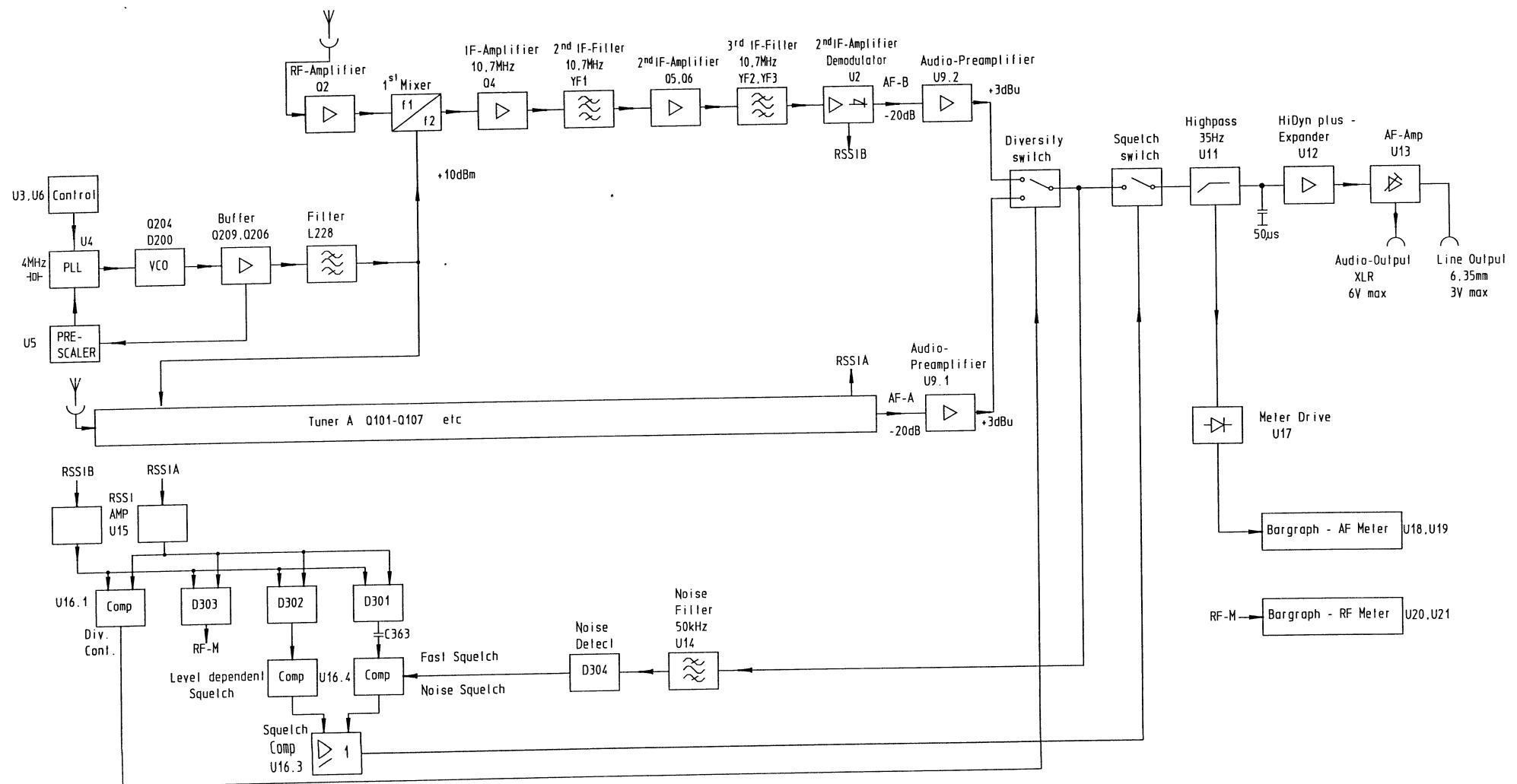
7.3 TEST AND ALIGNMENT INSTRUCTIONS

No.	Measurement, adjustment	Signal input	Preparations, settings	Test point	Required value	Adjust with	Remarks
1	Power consumption	-	V_o ; 12 VDC, S2 "ON"; Ammeter	J2	approx. 350 mA ± 10 mA		
1.1	Operating voltage (+ 11 VDC)	-	DC voltmeter	TP35	+ 11 ± 0.2 VDC		
1.2	Operating voltage (+ 8 VDC)	-	DC voltmeter	TP34	+ 8 ± 0.1 VDC		
1.3	Operating voltage (+ 5 VDC)	-	DC voltmeter	TP33	+ 5 ± 0.1 VDC		
1.4	Operating voltage (- 4 VDC)	-	DC voltmeter	TP29	- 4 ± 0.1 VDC		
2	Limits of tuning voltage	-	Set S1 to lowest and highest receiving frequency; DC voltmeter	TP30	- 2.0 ... + 3.8 VDC	C211	Frequency rise approx. 1.2 - 2.0 MHz / V
3	1st oscillator (RF level)	-	Set S1 to medium receiving frequency of switching bandwidth; spectrum analyser	TP31	max. RF level, approx. - 15 dBm	C228	
3.1	1st oscillator (frequency)	-	as 3; frequency meter	TP31	Receiver frequency - IF (10.7 MHz), tol. ± 200 Hz	C256	
4	RF input channel B	Tracking generator at J1, - 10 dBm	Spectrum analyser	TP1 on solder side	B: 7 MHz, approx. - 20 dBm	C4, C13, C18, C21	Tune image frequency rejector with C13 and C21 (receiver frequency - 21.4 MHz) to minimum level (\leq - 80 dBm)
4.1	RF input channel A	Tracking generator at J101, - 10 dBm	Spectrum analyser	TP11 on solder side	B: 7 MHz, approx. - 20 dBm	C104, C113, C118, C121	Tune image frequency rejector with C113 and C121 (receiver frequency - 21.4 MHz) to minimum level (\leq - 80 dBm)
5	Demodulator channel B	RF signal generator at J1: receiver frequency, RF: 1 mV, deviation: 40 kHz, modulation: 1 kHz	AF voltmeter, oscilloscope	J4	max. level	T1	
5.1	AF amplifier channel B	as 5	AF voltmeter, oscilloscope	J4	2.9 V _{eff}	R309	
5.2	Demodulator channel B (fine adjustment)	as 5.1	THD meter	J4	THD < 0.5 %	T1	Repeat 5.1 if necessary
5.3	Sensitivity channel B	RF signal generator at J1: receiver frequency, RF: 3 µV, deviation: off	AF voltmeter (A-weighted, effective), oscilloscope	J4	min. noise, \leq - 71 dBu at 3 µV		
5.4	Demodulator channel A	RF signal generator at J101: receiver frequency, RF: 1 mV, deviation: 40 kHz, modulation: 1 kHz	AF voltmeter, oscilloscope	J4	max. level	T103	
5.5	AF amplifier channel A	as 5.4	AF voltmeter, oscilloscope	J4	2.9 V _{eff}	R302	
5.6	Demodulator channel A (fine adjustment)	as 5.5	THD meter	J4	THD < 0.5 %	T103	Repeat 5.5 if necessary

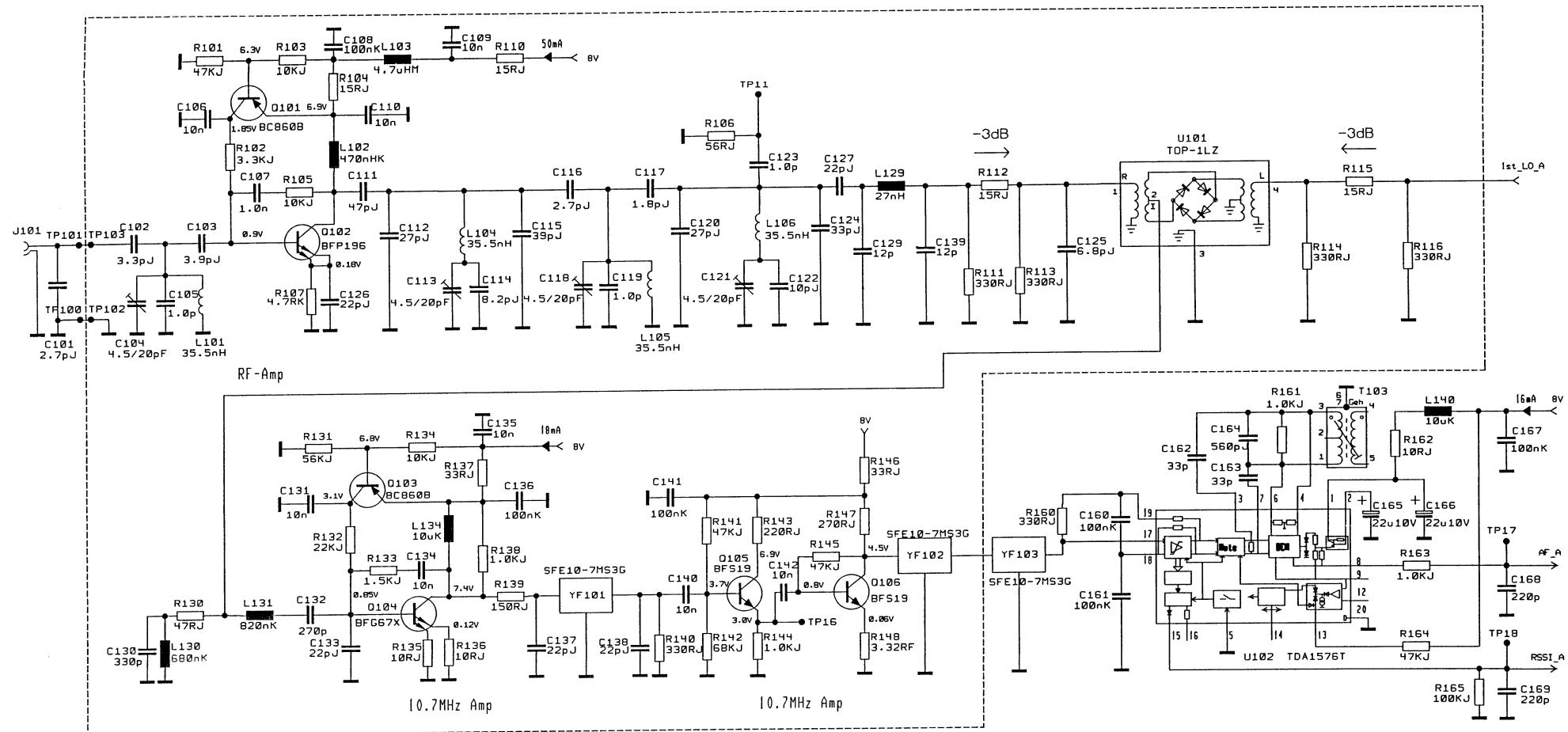
5.7	Sensitivity channel A	RF signal generator at J101: receiver frequency, RF: 3 µV, deviation: off	AF voltmeter (A-weighted, effective), oscilloscope	J4	min. noise, ≤ - 71 dBu at 3 µV		
6	RF level display channel A (10 dBµV)	RF signal generator at J101: receiver frequency, RF: 3 µV, deviation: 40 kHz, modulation: 1 kHz	Turn trimming resistor R380 to min.	LED display RF LEVEL	1st LED lights up (D452)	R372	
6.1	RF level display channel A (40 dBµV)	RF: 100 µV, otherwise as 6	-	LED display RF LEVEL	7th LED lights up (D458)	R370	Alternate 6 and 6.1 until the LED display indicates correct values.
6.2	RF level display channel B (10 dBµV)	RF signal generator at J1: receiver frequency, RF: 3 µV, deviation: 40 kHz, modulation: 1 kHz	-	LED display RF LEVEL	1st LED lights up (D452)	R377	
6.3	RF level display channel B (40 dBµV)	RF: 100 µV, otherwise as 6.2	-	LED display RF LEVEL	7th LED lights up (D458)	R380	Alternate 6.2 and 6.3 until the LED display indicates correct values.
7	Checking the sensitivity channel B	RF signal generator at J1: receiver frequency, RF: 3 µV, deviation: off	AF voltmeter (A-weighted, effective), oscilloscope	J4	min. noise < - 71 dBu		
7.1	Checking the sensitivity at the frequency limits, channel B	as 7	Set S1 to lowest and highest receiving frequency; AF voltmeter (A-weighted, effective), oscilloscope	J4	min. noise < - 65 dBu		
7.2	Checking the sensitivity channel A	RF signal generator at J101: receiver frequency, RF: 3 µV, deviation: off	AF voltmeter (A-weighted, effective), oscilloscope	J4	min. noise < - 71 dBu		
7.3	Checking the sensitivity at the frequency limits, channel A	as 7.2	Set S1 to lowest and highest receiving frequency; AF voltmeter (A-weighted, effective), oscilloscope	J4	min. noise < - 65 dBu		
7.4	Max. signal-to-noise ratio channel A	RF: 1 mV, otherwise as 7.3	Set S1 to medium receiving frequency of switching bandwidth, AF voltmeter (unweighted)	J4	approx. - 97 dBu		
7.5	Max. signal-to-noise ratio channel B	RF signal generator at J1: otherwise as 7.4	as 7.4	J4	approx. - 97 dBu		
8	AF frequency response channel B	RF: 1 mV, deviation: 40 kHz, modulation: 400 Hz, otherwise as 7.5	as 7.5	J4	11.4 dBu (0 dB)		
8.1	AF frequency response channel B	modulation: 30 Hz, otherwise as 8	as 8	J4	2.9 ... 4.9 dBu (- 6.5...- 8.5 dB)		
8.2	AF frequency response channel B	modulation: 20 kHz, otherwise as 8.1	as 8.1	J4	- 18.6...- 22.6 dBu (- 30...- 34 dB)		

8.3	AF frequency response channel A	RF signal generator at J101: RF: 1 mV, deviation: 40 kHz, modulation: 400 Hz; otherwise as 8.2	as 8.2	J4	11.4 dBu (0 dB)		
8.4	AF frequency response channel A	modulation: 30 Hz; otherwise as 8.3	as 8.3	J4	2.9 ... 4.9 dBu (- 6.5 ... - 8.5 dB)		
8.5	AF frequency response channel A	modulation: 20 kHz; otherwise as 8.4	as 8.4	J4	- 18.6...- 22.6 dBu (- 30...- 34 dB)		
8.6	THD channel A	deviation: 56 kHz, modulation: 1 kHz; otherwise as 8.5	THD meter	J4	THD < 0.5 %	Optimise with T103 if necessary.	From a deviation of approx. 51 kHz up, the "+ 12 dB" LED of the AF level display lights up.
8.7	THD channel B	RF signal generator at J1: otherwise as 8.6	THD meter	J4	THD < 0.5 %	Optimise with T1 if necessary.	From a deviation of approx. 51 kHz up, the "+ 12 dB" LED of the AF level display lights up.
9	Level-controlled squelch channel B	RF: approx. 2.0 µV; otherwise as 8.7	AF voltmeter	J4	AF output is muted		
9.1	Level-controlled squelch channel A	RF signal generator at J1: RF: approx. 2.0 µV; otherwise as 9	AF voltmeter	J4	AF output is muted		
9.2	Noise-controlled squelch channel A	RF: 1 mV, deviation: approx. 60 kHz, modulation: 50 kHz; otherwise as 9.1	AF voltmeter	J4	AF output is muted		

NOTES:



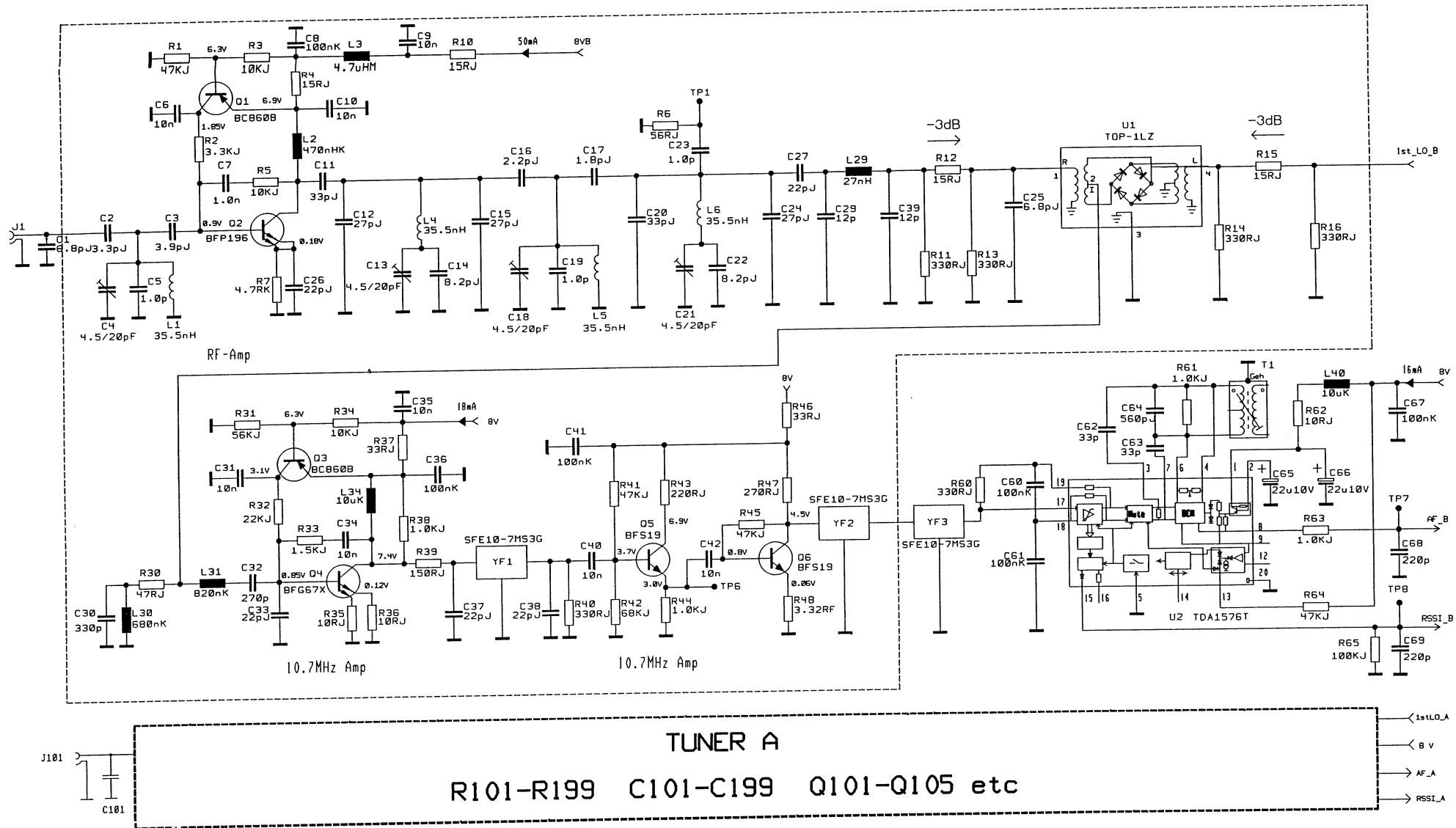
EM1031-V, BLOCKSCHALTBILD
EM1031-V, BLOCK DIAGRAM



No.	Freq.-MHz	RF-Amplifier												Code-Resistors					R111	R112	R113								
		C101	C102	L101	C103	C105	C111	C112	L104	C114	C115	C116	C117	C119	L105	C120	L106	C122	C124	C127	R105	C125	R501	R502	R503	R504			
1	138-155	2p7	3p9	43n	4p7	10p	47p	39p	43n	15p	39p	5p6	3p3	6p8	43n	39p	43n	15p	39p	22p	-	6p8	1k0	-	-	-	330	15	330
2	140-181	2p7	3p9	43n	4p7	4p7	56p	33p	43n	12p	39p	4p7	2p2	5p6	35n5	33p	43n	15p	27p	27p	-	6p8	-	1k0	-	-	180	33	180
3	174-223	2p7	3p3	35n5	3p9	-	47p	27p	35n5	8p2	39p	2p7	-	35n5	27p	35n5	10p	33p	22p	-	6p8	-	-	1k0	-	-	330	15	330
4	176-263	6p8	2p7	22n	3p9	-	100p	22p	35n5	-	22p	2p2	1p8	-	22n	22p	35n5	-	27p	15p	-	4p7	-	-	1k0	330	15	330	

Parts shown: Range 3

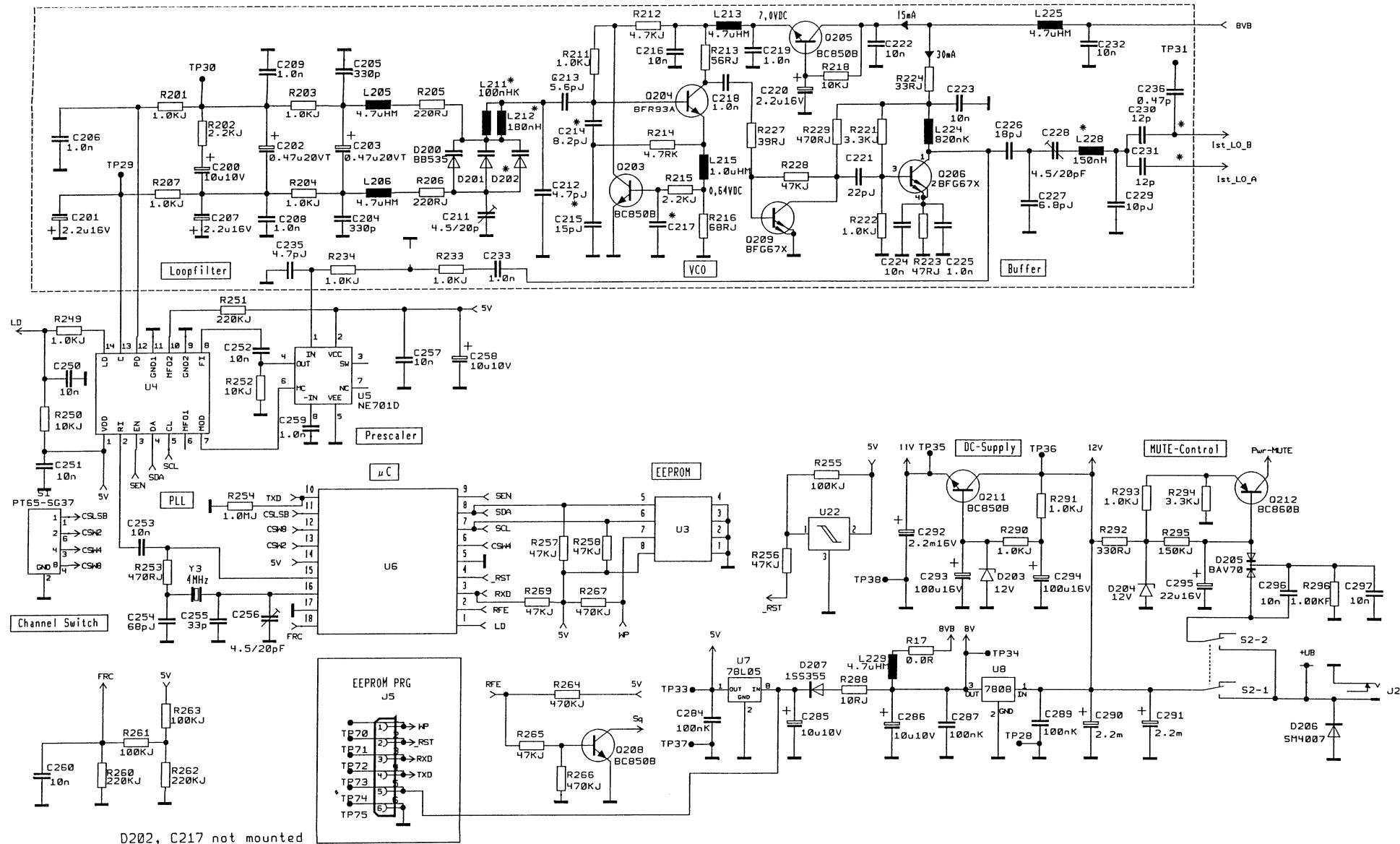
EM1031-V, STROMLAUFPLAN, HF-TEIL, TUNER A EM1031-V, CIRCUIT DIAGRAM, RF SECTION, TUNER A



No.	Freq., MHz	RF-Amplifier														Code-Resistors					R5	C25	R501	R502	R503	R504	
		C1	C2	L1	C3	C5	C11	C12	L4	C14	C15	C16	C17	C19	L5	C20	L6	C22	C24	C27							
1	138-155	6p8	3p9	43n	4p7	10p	47p	39p	43n	15p	39p	5p6	3p3	6p8	43n	39p	43n	15p	39p	22p	-	6p8	1k0	-	-	-	
2	148-181	6p8	3p9	43n	4p7	4p7	4p7	56p	33p	43n	12p	39p	4p7	20p	5p6	35n5	27p	43n	15p	33p	27p	-	6p8	-	1k0	-	-
3	174-223	6p8	3p3	35n5	39p	-	33p	27p	35n5	8p2	27p	2p2	1p8	-	35n5	33p	35n5	8p2	27p	22p	-	6p8	-	-	1k0	-	
4	216-260	6p8	3p3	22n	3p9	-	100p	22p	35n5	-	22p	2p2	1p8	-	22n	22p	35n5	-	27p	15p	-	4p7	-	-	-	1k0	

Parts shown: Range 3

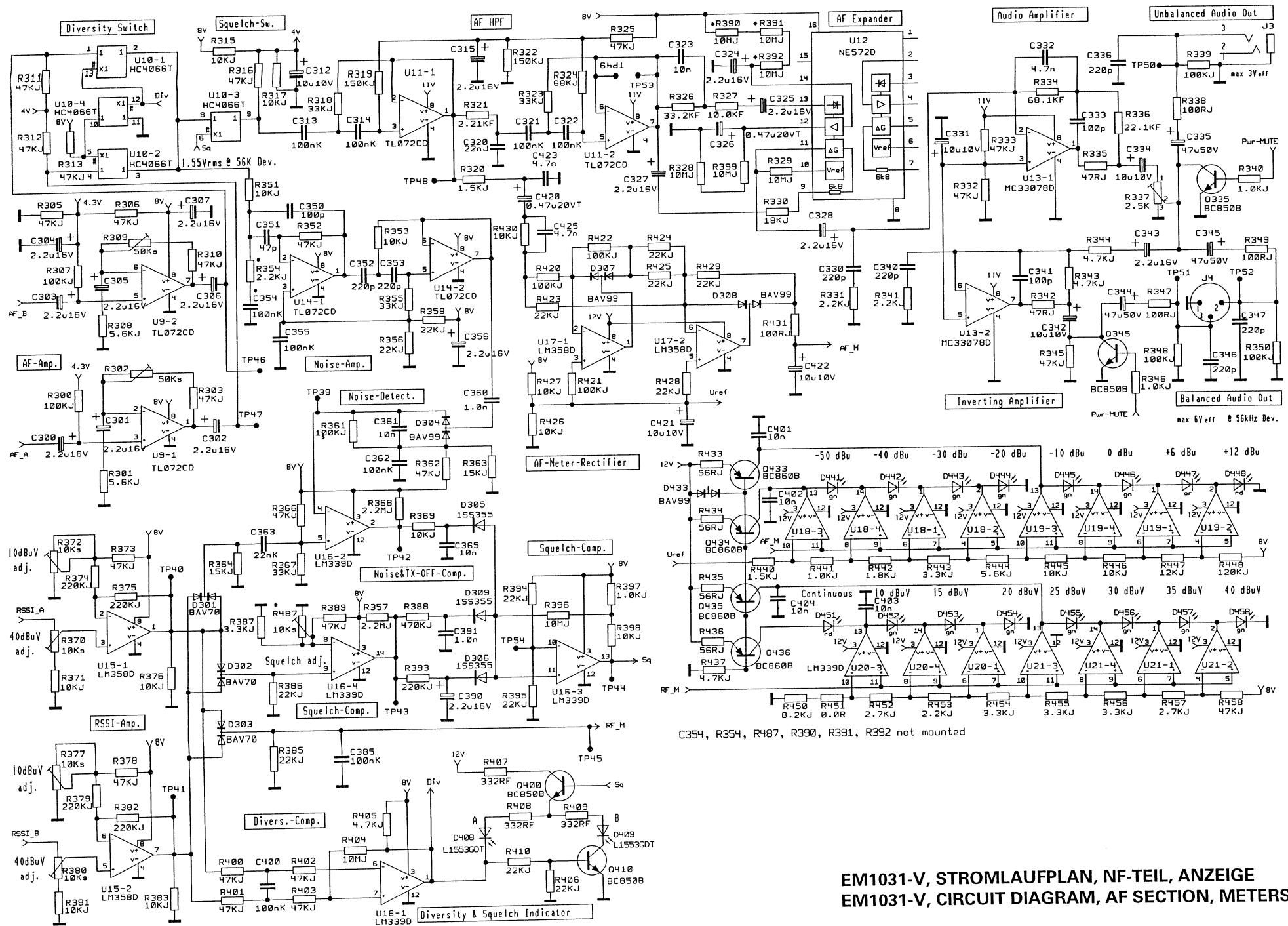
EM1031-V, STROMLAUFLPLAN, HF-TEIL, TUNER B EM1031-V, CIRCUIT DIAGRAM, RF SECTION, TUNER B



Parts shown: Range 3

No.	Freq. MHz	VCO				BUFFER				μ C Range												
		L211	L212	D201	C212	C213	C214	C215	C221	C226	C227	C229	C230	C231	C234	L228	R260	R262	R263	R14 R114	R15 R115	R16 R116
1	138-155	330n	-	B8535	4p7	5p6	33p	22p	22p	10p	10p	15p	18p	18p	2p2	220n	220k	100k	-	OR	-	
2	148-181	330n	-	-	4p7	5p6	15p	22p	22p	18p	5p6	12p	12p	12p	2p2	220n	220k	100k	330	15	330	
3	174-223	-	180nH	B8535	4p7	5p6	8p2	15p	22p	18p	6p8	10p	12p	12p	1p0	150n	-	220k	100k	330	15	330
4	216-260	100n	-	B8535	5p6	5p6	8p2	15p	22p	18p	6p8	15p	18p	18p	1p0	100n	-	-	100k	330	15	330

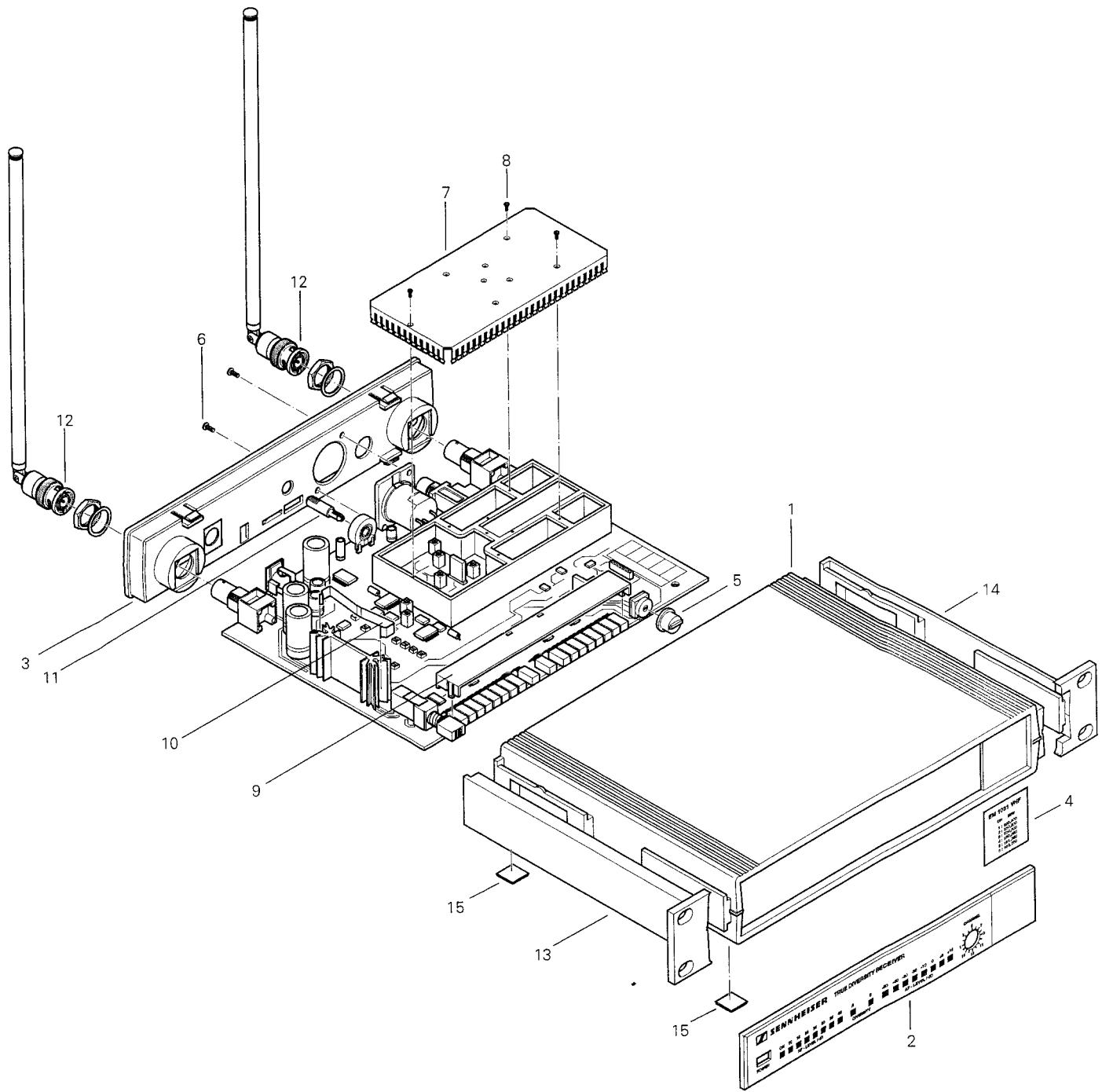
EM1031-V, STROMLAUFPLAN, PLL, ZF-TEIL
EM1031-V, CIRCUIT DIAGRAM, PLL, IF SECTION



EM1031-V, STROMLAUFPLAN, NF-TEIL, ANZEIGE
EM1031-V, CIRCUIT DIAGRAM, AF SECTION, METERS

9 EXPLOSIONSZEICHNUNG

9 EXPLODED VIEW



10 ERSATZTEILE

10 SPARE PARTS

POS	IDENT	BEZEICHNUNG	DESCRIPTION
001	54459	Gehäuse	Housing
002	59077	Blende "Receiver 6KA"	Cover "Receiver 6KA"
003	54461	Rückwand	Rear panel
004	54786	Schild	Label
005	55925	Knopf	Knob
006	53282	Zylinderschraube	Cheese head screw
007	56947	Deckel	Cover
008	53279	Linsenschraube CM2x4 DIN7500 (MOQ:10x)	Lens screw CM2x4 DIN7500 (MOQ:10x)
009	55749	Diodenhalter	Diode holder
010	54377	Clip	Clip
011	21540	Steckwelle	Shaft extension
012	50200	Teleskopantenne mit Gelenk	Antenna with swivel mount
013	54755	Seitenteil für 19", links	Cheek for 19", left part
014	54757	Seitenteil für 19", rechts	Cheek for 19", right part
015	70506	Fuß	Foot
AA001	51153	Kabel 1m Kl6,3mm/Kl6,3mm	Jack cable 1m, jack6.3mm/jack6.3mm
AA002	72124	Stecker-Netzteil 230V/12VDC	AC/DC converter 230V/12VDC
AA003	72125	Stecker-Netzteil UK 230V/12,0V/0,5A	AC/DC converter UK 230V/12.0V/0.5A
AA004	72126	Stecker-Netzteil US 120V/12,0V/0,42A	AC/DC converter US 120V/12.0V/0.42A
C001	29248	SMD Kondensator KERKO 6,8pF 50V NPO 0805 (MOQ:50x) 138-260MHz	SMD capacitor KERKO 6.8pF 50V NPO 0805 (MOQ:50x) 138-260MHz
C002A	29140	SMD Kondensator KERKO 3,9pF 50V NPO 0805 (MOQ:50x) 138-181MHz	SMD capacitor KERKO 3.9pF 50V NPO 0805 (MOQ:50x) 138-181MHz
C002B	28834	SMD Kondensator KERKO 3,3pF 50V NPO 0805 (MOQ:50x) 174-260MHz	SMD capacitor KERKO 3.3pF 50V NPO 0805 (MOQ:50x) 174-260MHz
C003A	17941	SMD Kondensator KERKO 4,7pF 50V NPO 0805 (MOQ:50x) 138-181MHz	SMD capacitor KERKO 4.7pF 50V NPO 0805 (MOQ:50x) 138-181MHz
C003B	29140	SMD Kondensator KERKO 3,9pF 50V NPO 0805 (MOQ:50x) 174-260MHz	SMD capacitor KERKO 3.9pF 50V NPO 0805 (MOQ:50x) 174-260MHz
C004	45263	Federleiste	Spring strip
C005A	19617	SMD Kondensator KERKO 10pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 10pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C005B	17941	SMD Kondensator KERKO 4,7pF 50V NPO 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 4.7pF 50V NPO 0805 (MOQ:50x) 148-181MHz
C006	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C007	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C008	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C009	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C010	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C011A	19509	SMD Kondensator KERKO 47pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 47pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C011B	29145	SMD Kondensator KERKO 56pF 50V NPO 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 56pF 50V NPO 0805 (MOQ:50x) 148-181MHz
C011C	28816	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x) 174-223MHz	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x) 174-223MHz
C011D	28692	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x) 216-260MHz	SMD capacitor KERKO 100pF 50V NPO 0805 (MOQ:50x) 216-260MHz
C012A	29144	SMD Kondensator KERKO 39pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 39pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C012B	28816	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x) 148-181MHz	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x) 148-181MHz
C012C	29111	SMD Kondensator KERKO 27pF 50V NPO 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 27pF 50V NPO 0805 (MOQ:50x) 174-223MHz
C012D	19584	SMD Kondensator KERKO 22pF 50V NPO 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 22pF 50V NPO 0805 (MOQ:50x) 216-260MHz
C013	45263	Federleiste	Spring strip
C014A	29142	SMD Kondensator KERKO 15pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 15pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C014B	29141	SMD Kondensator KERKO 12pF 50V NPO 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 12pF 50V NPO 0805 (MOQ:50x) 148-181MHz
C014C	29565	SMD Kondensator KERKO 8,2pF 50V NPO 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 8.2pF 50V NPO 0805 (MOQ:50x) 174-223MHz
C015A	29144	SMD Kondensator KERKO 39pF 50V NPO 0805 (MOQ:50x) 138-181MHz	SMD capacitor KERKO 39pF 50V NPO 0805 (MOQ:50x) 138-181MHz
C015B	29111	SMD Kondensator KERKO 27pF 50V NPO 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 27pF 50V NPO 0805 (MOQ:50x) 174-223MHz
C015C	19584	SMD Kondensator KERKO 22pF 50V NPO 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 22pF 50V NPO 0805 (MOQ:50x) 216-260MHz
C016A	29402	SMD Kondensator KERKO 5,6pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 5.6pF 50V NPO 0805 (MOQ:50x) 138-155MHz

POS	IDENT	BEZEICHNUNG	DESCRIPTION
C016B	17941	SMD Kondensator KERKO 4,7pF 50V NPO 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 4.7pF 50V NPO 0805 (MOQ:50x) 148-181MHz
C016C	29011	SMD Kondensator KERKO 2,2pF 50V NPO (MOQ:50x) 174-260MHz	SMD capacitor KERKO 2.2pF 50V NPO (MOQ:50x) 174-260MHz
C017A	28834	SMD Kondensator KERKO 3,3pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 3.3pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C017B	29011	SMD Kondensator KERKO 2,2pF 50V NPO (MOQ:50x) 148-181MHz	SMD capacitor KERKO 2.2pF 50V NPO (MOQ:50x) 148-181MHz
C017C	29562	SMD Kondensator KERKO 1,8pF 50V NPO (MOQ:50x) 174-260MHz	SMD capacitor KERKO 1.8pF 50V NPO 0805 (MOQ:50x) 174-260MHz
C018	45263	Federleiste	Spring strip
C019A	29248	SMD Kondensator KERKO 6,8pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 6.8pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C019B	29402	SMD Kondensator KERKO 5,6pF 50V NPO 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 5.6pF 50V NPO 0805 (MOQ:50x) 148-181MHz
C020A	29144	SMD Kondensator KERKO 39pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 39pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C020B	29111	SMD Kondensator KERKO 27pF 50V NPO 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 27pF 50V NPO 0805 (MOQ:50x) 148-181MHz
C020C	28816	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x) 174-223MHz	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x) 174-223MHz
C020D	19584	SMD Kondensator KERKO 22pF 50V NPO 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 22pF 50V NPO 0805 (MOQ:50x) 216-260MHz
C021	45263	Federleiste	Spring strip
C022A	29142	SMD Kondensator KERKO 15pF 50V NPO 0805 (MOQ:50x) 138-181MHz	SMD capacitor KERKO 15pF 50V NPO 0805 (MOQ:50x) 138-181MHz
C022B	29565	SMD Kondensator KERKO 8,2pF 50V NPO 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 8.2pF 50V NPO 0805 (MOQ:50x) 174-223MHz
C023	29014	SMD Kondensator KERKO 1pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 1pF 50V NPO (MOQ:50x)
C024A	29144	SMD Kondensator KERKO 39pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 39pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C024B	28816	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x) 148-181MHz	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x) 148-181MHz
C024C	29111	SMD Kondensator KERKO 27pF 50V NPO 0805 (MOQ:50x) 174-260MHz	SMD capacitor KERKO 27pF 50V NPO 0805 (MOQ:50x) 174-260MHz
C025A	29248	SMD Kondensator KERKO 6,8pF 50V NPO 0805 (MOQ:50x) 138-223MHz	SMD capacitor KERKO 6.8pF 50V NPO 0805 (MOQ:50x) 138-223MHz
C025B	17941	SMD Kondensator KERKO 4,7pF 50V NPO 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 4.7pF 50V NPO 0805 (MOQ:50x) 216-260MHz
C026	19584	SMD Kondensator KERKO 22pF 50V NPO 0805 (MOQ:50x)	SMD capacitor KERKO 22pF 50V NPO 0805 (MOQ:50x)
C027A	19584	SMD Kondensator KERKO 22pF 50V NPO 0805 (MOQ:50x) 138-155, 174-223MHz	SMD capacitor KERKO 22pF 50V NPO 0805 (MOQ:50x) 138-155, 174-223MHz
C027B	29111	SMD Kondensator KERKO 27pF 50V NPO 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 27pF 50V NPO 0805 (MOQ:50x) 148-181MHz
C027C	29142	SMD Kondensator KERKO 15pF 50V NPO 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 15pF 50V NPO 0805 (MOQ:50x) 216-260MHz
C029	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x)
C030	45192	SMD Kondensator KERKO 270pF 50V 0603 X7R (MOQ:50x)	SMD capacitor KERKO 270pF 50V 0603 X7R (MOQ:50x)
C031	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C032	45246	SMD Kondensator KERKO 270pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 270pF 50V X7R (MOQ:50x)
C033	19584	SMD Kondensator KERKO 22pF 50V NPO 0805 (MOQ:50x)	SMD capacitor KERKO 22pF 50V NPO 0805 (MOQ:50x)
C034	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C035	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C036	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C037	19584	SMD Kondensator KERKO 22pF 50V NPO 0805 (MOQ:50x)	SMD capacitor KERKO 22pF 50V NPO 0805 (MOQ:50x)
C038	19584	SMD Kondensator KERKO 22pF 50V NPO 0805 (MOQ:50x)	SMD capacitor KERKO 22pF 50V NPO 0805 (MOQ:50x)
C039	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x)
C040	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C041	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C042	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C060	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C061	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C062	45180	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x)
C063	45180	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x)
C064	28836	SMD Kondensator KERKO 560pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 560pF 50V NPO (MOQ:50x)
C065	41415	SMD Kondensator TA-ELKO 22uF 10V	SMD capacitor TA-ELKO 22uF 10V
C066	41415	SMD Kondensator TA-ELKO 22uF 10V	SMD capacitor TA-ELKO 22uF 10V
C067	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C068	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C069	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C101A	29476	SMD Kondensator KERKO 2,7pF 50V NPO 0805 (MOQ:50x) 138-223MHz	SMD capacitor KERKO 2.7pF 50V NPO 0805 (MOQ:50x) 138-223MHz

POS	IDENT	BEZEICHNUNG	DESCRIPTION
C101B	29248	SMD Kondensator KERKO 6,8pF 50V NP0 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 6.8pF 50V NP0 0805 (MOQ:50x) 216-260MHz
C102A	29140	SMD Kondensator KERKO 3,9pF 50V NP0 0805 (MOQ:50x) 138-181MHz	SMD capacitor KERKO 3.9pF 50V NP0 0805 (MOQ:50x) 138-181MHz
C102B	28834	SMD Kondensator KERKO 3,3pF 50V NP0 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 3.3pF 50V NP0 0805 (MOQ:50x) 174-223MHz
C102C	29476	SMD Kondensator KERKO 2,7pF 50V NP0 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 2.7pF 50V NP0 0805 (MOQ:50x) 216-260MHz
C104	45263	Federleiste	Spring strip
C105A	19617	SMD Kondensator KERKO 10pF 50V NP0 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 10pF 50V NP0 0805 (MOQ:50x) 138-155MHz
C105B	17941	SMD Kondensator KERKO 4,7pF 50V NP0 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 4.7pF 50V NP0 0805 (MOQ:50x) 148-181MHz
C106	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C107	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C108	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C109	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C110	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C111A	19509	SMD Kondensator KERKO 47pF 50V NPO 0805 (MOQ:50x) 138-155, 174-223MHz	SMD capacitor KERKO 47pF 50V NPO 0805 (MOQ:50x) 138-155, 174-223MHz
C111B	29145	SMD Kondensator KERKO 56pF 50V NP0 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 56pF 50V NP0 0805 (MOQ:50x) 148-181MHz
C111C	28692	SMD Kondensator KERKO 100pF 50V NP0 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 100pF 50V NP0 0805 (MOQ:50x) 216-260MHz
C112A	29144	SMD Kondensator KERKO 39pF 50V NP0 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 39pF 50V NP0 0805 (MOQ:50x) 138-155MHz
C112B	28816	SMD Kondensator KERKO 33pF 50V NP0 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 33pF 50V NP0 (MOQ:50x) 148-181MHz
C112C	29111	SMD Kondensator KERKO 27pF 50V NP0 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 27pF 50V NP0 0805 (MOQ:50x) 174-223MHz
C112D	19584	SMD Kondensator KERKO 22pF 50V NP0 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 22pF 50V NP0 0805 (MOQ:50x) 216-260MHz
C113	45263	Federleiste	Spring strip
C114A	29142	SMD Kondensator KERKO 15pF 50V NP0 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 15pF 50V NP0 0805 (MOQ:50x) 138-155MHz
C114B	29141	SMD Kondensator KERKO 12pF 50V NP0 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 12pF 50V NP0 0805 (MOQ:50x) 148-181MHz
C114C	29565	SMD Kondensator KERKO 8,2pF 50V NP0 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 8.2pF 50V NP0 0805 (MOQ:50x) 174-223MHz
C115A	29144	SMD Kondensator KERKO 39pF 50V NP0 0805 (MOQ:50x) 138-223MHz	SMD capacitor KERKO 39pF 50V NP0 0805 (MOQ:50x) 138-223MHz
C115B	19584	SMD Kondensator KERKO 22pF 50V NP0 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 22pF 50V NP0 0805 (MOQ:50x) 216-260MHz
C116A	29402	SMD Kondensator KERKO 5,6pF 50V NP0 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 5.6pF 50V NP0 0805 (MOQ:50x) 138-155MHz
C116B	17941	SMD Kondensator KERKO 4,7pF 50V NP0 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 4.7pF 50V NP0 0805 (MOQ:50x) 148-181MHz
C116C	29476	SMD Kondensator KERKO 2,7pF 50V NP0 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 2.7pF 50V NP0 0805 (MOQ:50x) 174-223MHz
C116D	29011	SMD Kondensator KERKO 2,2pF 50V NP0 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 2.2pF 50V NP0 (MOQ:50x) 216-260MHz
C117A	28834	SMD Kondensator KERKO 3,3pF 50V NP0 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 3.3pF 50V NP0 0805 (MOQ:50x) 138-155MHz
C117B	29011	SMD Kondensator KERKO 2,2pF 50V NP0 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 2.2pF 50V NP0 (MOQ:50x) 148-181MHz
C117C	29562	SMD Kondensator KERKO 1,8pF 50V NP0 (MOQ:50x) 174-260MHz	SMD capacitor KERKO 1.8pF 50V NP0 0805 (MOQ:50x) 174-260MHz
C118	45263	Federleiste	Spring strip
C119A	29248	SMD Kondensator KERKO 6,8pF 50V NP0 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 6.8pF 50V NP0 0805 (MOQ:50x) 138-155MHz
C119B	29402	SMD Kondensator KERKO 5,6pF 50V NP0 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 5.6pF 50V NP0 0805 (MOQ:50x) 148-181MHz
C120A	29144	SMD Kondensator KERKO 39pF 50V NP0 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 39pF 50V NP0 0805 (MOQ:50x) 138-155MHz
C120B	28816	SMD Kondensator KERKO 33pF 50V NP0 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 33pF 50V NP0 (MOQ:50x) 148-181MHz
C120C	29111	SMD Kondensator KERKO 27pF 50V NP0 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 27pF 50V NP0 0805 (MOQ:50x) 174-223MHz
C120D	19584	SMD Kondensator KERKO 22pF 50V NP0 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 22pF 50V NP0 0805 (MOQ:50x) 216-260MHz
C121	45263	Federleiste	Spring strip
C122A	29142	SMD Kondensator KERKO 15pF 50V NP0 0805 (MOQ:50x) 138-181MHz	SMD capacitor KERKO 15pF 50V NP0 0805 (MOQ:50x) 138-181MHz

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C122B	19617	SMD Kondensator KERKO 10pF 50V NP0 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 10pF 50V NP0 0805 (MOQ:50x) 174-223MHz
C123	29014	SMD Kondensator KERKO 1pF 50V NP0 (MOQ:50x)	SMD capacitor KERKO 1pF 50V NPO (MOQ:50x)
C124A	29144	SMD Kondensator KERKO 39pF 50V NP0 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 39pF 50V NP0 0805 (MOQ:50x) 138-155MHz
C124B	29111	SMD Kondensator KERKO 27pF 50V NP0 0805 (MOQ:50x) 148-181, 216-260MHz	SMD capacitor KERKO 27pF 50V NP0 0805 (MOQ:50x) 148-181, 216-260MHz
C124C	28816	SMD Kondensator KERKO 33pF 50V NP0 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 33pF 50V NP0 (MOQ:50x) 174-223MHz
C125A	29248	SMD Kondensator KERKO 6,8pF 50V NP0 0805 (MOQ:50x) 138-223MHz	SMD capacitor KERKO 6.8pF 50V NP0 0805 (MOQ:50x) 138-223MHz
C125B	17941	SMD Kondensator KERKO 4,7pF 50V NP0 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 4.7pF 50V NP0 0805 (MOQ:50x) 216-260MHz
C126	19584	SMD Kondensator KERKO 22pF 50V NP0 0805 (MOQ:50x)	SMD capacitor KERKO 22pF 50V NP0 0805 (MOQ:50x)
C127A	19584	SMD Kondensator KERKO 22pF 50V NP0 0805 (MOQ:50x) 138-155, 174-223MHz	SMD capacitor KERKO 22pF 50V NP0 0805 (MOQ:50x) 138-155, 174-223MHz
C127B	29111	SMD Kondensator KERKO 27pF 50V NP0 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 27pF 50V NP0 0805 (MOQ:50x) 148-181MHz
C127C	29142	SMD Kondensator KERKO 15pF 50V NP0 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 15pF 50V NP0 0805 (MOQ:50x) 216-260MHz
C129	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x)
C130	45192	SMD Kondensator KERKO 270pF 50V 0603 X7R (MOQ:50x)	SMD capacitor KERKO 270pF 50V 0603 X7R (MOQ:50x)
C131	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C132	45246	SMD Kondensator KERKO 270pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 270pF 50V X7R (MOQ:50x)
C133	19584	SMD Kondensator KERKO 22pF 50V NP0 0805 (MOQ:50x)	SMD capacitor KERKO 22pF 50V NP0 0805 (MOQ:50x)
C134	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C135	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C136	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C137	19584	SMD Kondensator KERKO 22pF 50V NP0 0805 (MOQ:50x)	SMD capacitor KERKO 22pF 50V NP0 0805 (MOQ:50x)
C138	19584	SMD Kondensator KERKO 22pF 50V NP0 0805 (MOQ:50x)	SMD capacitor KERKO 22pF 50V NP0 0805 (MOQ:50x)
C139	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x)
C140	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C141	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C142	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C160	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C161	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C162	45180	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x)
C163	45180	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x)
C164	28836	SMD Kondensator KERKO 560pF 50V NP0 (MOQ:50x)	SMD capacitor KERKO 560pF 50V NP0 (MOQ:50x)
C165	41415	SMD Kondensator TA-ELKO 22uF 10V	SMD capacitor TA-ELKO 22uF 10V
C166	41415	SMD Kondensator TA-ELKO 22uF 10V	SMD capacitor TA-ELKO 22uF 10V
C167	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C168	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C169	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C200	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C201	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C202	45050	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C203	45050	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C204	45192	SMD Kondensator KERKO 270pF 50V 0603 X7R (MOQ:50x)	SMD capacitor KERKO 270pF 50V 0603 X7R (MOQ:50x)
C205	45192	SMD Kondensator KERKO 270pF 50V 0603 X7R (MOQ:50x)	SMD capacitor KERKO 270pF 50V 0603 X7R (MOQ:50x)
C206	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C207	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C208	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C209	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C211	45875	SMD Trimmkondensator 4,5/20pF (MOQ:50x)	SMD capacitor variable 4.5/20pF (MOQ:50x)
C212A	17941	SMD Kondensator KERKO 4,7pF 50V NP0 0805 (MOQ:50x) 138-223MHz	SMD capacitor KERKO 4.7pF 50V NP0 0805 (MOQ:50x) 138-223MHz
C212B	29402	SMD Kondensator KERKO 5,6pF 50V NP0 0805 (MOQ:50x) 216-260MHz	SMD capacitor KERKO 5.6pF 50V NP0 0805 (MOQ:50x) 216-260MHz
C213	29402	SMD Kondensator KERKO 5,6pF 50V NP0 0805 (MOQ:50x) 138-260MHz	SMD capacitor KERKO 5.6pF 50V NP0 0805 (MOQ:50x) 138-260MHz
C214A	28816	SMD Kondensator KERKO 33pF 50V NP0 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 33pF 50V NP0 (MOQ:50x) 138-155MHz
C214B	29142	SMD Kondensator KERKO 15pF 50V NP0 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 15pF 50V NP0 0805 (MOQ:50x) 148-181MHz
C214C	29565	SMD Kondensator KERKO 8,2pF 50V NP0 0805 (MOQ:50x) 174-260MHz	SMD capacitor KERKO 8.2pF 50V NP0 0805 (MOQ:50x) 174-260MHz
C215A	19584	SMD Kondensator KERKO 22pF 50V NP0 0805 (MOQ:50x) 138-181MHz	SMD capacitor KERKO 22pF 50V NP0 0805 (MOQ:50x) 138-181MHz
C215B	29142	SMD Kondensator KERKO 15pF 50V NP0 0805 (MOQ:50x) 174-260MHz	SMD capacitor KERKO 15pF 50V NP0 0805 (MOQ:50x) 174-260MHz
C216	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C218	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)

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C219	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C220	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C221	19584	SMD Kondensator KERKO 22pF 50V NPO 0805 (MOQ:50x) 138-260MHz	SMD capacitor KERKO 22pF 50V NPO 0805 (MOQ:50x) 138-260MHz
C222	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C223	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C224	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C225	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C226A	19617	SMD Kondensator KERKO 10pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 10pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C226B	29143	SMD Kondensator KERKO 18pF 50V NPO 0805 (MOQ:50x) 148-260MHz	SMD capacitor KERKO 18pF 50V NPO 0805 (MOQ:50x) 148-260MHz
C227A	19617	SMD Kondensator KERKO 10pF 50V NPO 0805 (MOQ:50x) 138-155MHz	SMD capacitor KERKO 10pF 50V NPO 0805 (MOQ:50x) 138-155MHz
C227B	29402	SMD Kondensator KERKO 5,6pF 50V NPO 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 5.6pF 50V NPO 0805 (MOQ:50x) 148-181MHz
C227C	29248	SMD Kondensator KERKO 6,8pF 50V NPO 0805 (MOQ:50x) 174-260MHz	SMD capacitor KERKO 6.8pF 50V NPO 0805 (MOQ:50x) 174-260MHz
C228	45263	Federleiste	Spring strip
C229A	29142	SMD Kondensator KERKO 15pF 50V NPO 0805 (MOQ:50x) 138-155, 216-260MHz	SMD capacitor KERKO 15pF 50V NPO 0805 (MOQ:50x) 138-155, 216-260MHz
C229B	29141	SMD Kondensator KERKO 12pF 50V NPO 0805 (MOQ:50x) 148-181MHz	SMD capacitor KERKO 12pF 50V NPO 0805 (MOQ:50x) 148-181MHz
C229C	19617	SMD Kondensator KERKO 10pF 50V NPO 0805 (MOQ:50x) 174-223MHz	SMD capacitor KERKO 10pF 50V NPO 0805 (MOQ:50x) 174-223MHz
C230A	45177	SMD Kondensator KERKO 18pF 50V NPO (MOQ:50x) 138-155, 216-260MHz	SMD capacitor KERKO 18pF 50V NPO (MOQ:50x) 138-155, 216-260MHz
C230B	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x) 148-223MHz	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x) 148-223MHz
C231A	45177	SMD Kondensator KERKO 18pF 50V NPO (MOQ:50x) 138-155, 216-260MHz	SMD capacitor KERKO 18pF 50V NPO (MOQ:50x) 138-155, 216-260MHz
C231B	45175	SMD Kondensator KERKO 12pF 50V NPO (MOQ:50x) 148-223MHz	SMD capacitor KERKO 12pF 50V NPO (MOQ:50x) 148-223MHz
C232	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C233	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C234A	29011	SMD Kondensator KERKO 2,2pF 50V NPO (MOQ:50x) 138-181MHz	SMD capacitor KERKO 2.2pF 50V NPO (MOQ:50x) 138-181MHz
C234B	29014	SMD Kondensator KERKO 1pF 50V NPO (MOQ:50x) 174-260MHz	SMD capacitor KERKO 1pF 50V NPO (MOQ:50x) 174-260MHz
C235	17941	SMD Kondensator KERKO 4,7pF 50V NPO 0805 (MOQ:50x)	SMD capacitor KERKO 4.7pF 50V NPO 0805 (MOQ:50x)
C236	34523	SMD Kondensator KERKO 47pF 50V NPO 0805 (MOQ:50x)	SMD capacitor KERKO 47pF 50V NPO 0805 (MOQ:50x)
C250	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C251	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C252	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C253	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C254	45184	SMD Kondensator KERKO 68pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 68pF 50V NPO (MOQ:50x)
C255	45180	SMD Kondensator KERKO 33pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 33pF 50V NPO (MOQ:50x)
C256	45263	Federleiste	Spring strip
C257	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C258	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C259	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C260	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C284	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C285	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C286	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C287	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C289	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C290	45698	Kondensator AL-ELKO 2,2mF 25V CA	Kondensator AL-ELKO 2.2mF 25V CA
C291	45698	Kondensator AL-ELKO 2,2mF 25V CA	Kondensator AL-ELKO 2.2mF 25V CA
C292	45697	Kondensator AL-ELKO 2,2mF 16V CA	Capacitor AL-ELKO 2.2mF 16V CA
C293	24566	Kondensator AL-ELKO 100uF 16V	Capacitor AL-ELKO 100uF 16V
C294	24566	Kondensator AL-ELKO 100uF 16V	Capacitor AL-ELKO 100uF 16V
C295	27962	Kondensator AL-ELKO 22uF 16V CA	Capacitor AL-ELKO 22uF 16V CA
C296	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C297	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C300	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C301	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C302	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C303	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C304	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C305	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C306	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C307	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3

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C312	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C313	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C314	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C315	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C320	40480	Kondensator MKT-KO 22nF 63V	Capacitor MKT-KO 22nF 63V
C321	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C322	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C323	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C324	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C325	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C326	45050	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C327	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C328	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C330	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C331	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C332	45199	SMD Kondensator KERKO 4,7nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 4.7nF 50X X7R (MOQ:50x)
C333	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C334	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C335	45545	Kondensator AL-ELKO 47uF 50V (MOQ:50x)	Capacitor AL-ELKO 47uF 50V (MOQ:50x)
C336	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C340	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C341	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C342	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C343	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C344	45545	Kondensator AL-ELKO 47uF 50V (MOQ:50x)	Capacitor AL-ELKO 47uF 50V (MOQ:50x)
C345	45545	Kondensator AL-ELKO 47uF 50V (MOQ:50x)	Capacitor AL-ELKO 47uF 50V (MOQ:50x)
C346	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C347	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C350	45186	SMD Kondensator KERKO 100pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 100pF 50V NPO (MOQ:50x)
C351	45182	SMD Kondensator KERKO 47pF 50V NPO (MOQ:50x)	SMD capacitor KERKO 47pF 50V NPO (MOQ:50x)
C352	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C353	45191	SMD Kondensator KERKO 220pF 50V X7R (MOQ:50x)	SMD capacitor KERKO 220pF 50V X7R (MOQ:50x)
C355	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C356	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C360	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C361	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C362	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C363	32118	SMD Kondensator KERKO 22nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 22nF 50V X7R (MOQ:50x)
C365	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C385	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C390	45043	SMD Kondensator TA-KO 2,2uF 16V IEC 384,3	SMD capacitor TA-KO 2.2uF 16V IEC 384,3
C391	45195	SMD Kondensator KERKO 1nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 1nF 50V X7R (MOQ:50x)
C400	19480	SMD Kondensator KERKO 100nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 100nF 50V X7R (MOQ:50x)
C401	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C402	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C403	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C404	45201	SMD Kondensator KERKO 10nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 10nF 50V X7R (MOQ:50x)
C420	45050	SMD Kondensator TA-KO 470nF 20V	SMD Capacitor TA-KO 470nF 20V
C421	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C422	45010	SMD Kondensator TA-KO 10uF 4V ERO ETPW1	SMD capacitor TA-KO 10uF 4V ERO ETPW1
C423	45199	SMD Kondensator KERKO 4,7nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 4.7nF 50X X7R (MOQ:50x)
C425	45199	SMD Kondensator KERKO 4,7nF 50V X7R (MOQ:50x)	SMD capacitor KERKO 4.7nF 50X X7R (MOQ:50x)
D200	45840	SMD Diode Varicap	SMD diode varicap
D201	45840	SMD Diode Varicap 138-155, 174-260Mhz	SMD diode varicap 138-155, 174-260MHz
D203	45412	SMD Z-Diode Mini-MELF ZMM12-2	SMD Z diode Mini-MELF ZMM12-2
D204	45412	SMD Z-Diode Mini-MELF ZMM12-2	SMD Z diode Mini-MELF ZMM12-2
D205	45253	SMD Doppeldiode BAV70 SOT23	SMD diodes (two) BAV70 SOT23
D206	39667	SMD Diode SM 4007	SMD diode SM 4007
D207	45444	SMD Diode 1SS355	SMD diode 1SS355
D301	45253	SMD Doppeldiode BAV70 SOT23	SMD diodes (two) BAV70 SOT23
D302	45253	SMD Doppeldiode BAV70 SOT23	SMD diodes (two) BAV70 SOT23
D303	45253	SMD Doppeldiode BAV70 SOT23	SMD diodes (two) BAV70 SOT23
D304	32642	SMD Doppeldiode BAV99 SOT23	SMD diodes (two) BAV99 SOT23
D305	45444	SMD Diode 1SS355	SMD diode 1SS355
D306	45444	SMD Diode 1SS355	SMD diode 1SS355
D307	32642	SMD Doppeldiode BAV99 SOT23	SMD diodes (two) BAV99 SOT23
D308	32642	SMD Doppeldiode BAV99 SOT23	SMD diodes (two) BAV99 SOT23
D309	45444	SMD Diode 1SS355	SMD diode 1SS355
D408	45680	LED, rot	LED, red
D409	45680	LED, rot	LED, red
D433	32642	SMD Doppeldiode BAV99 SOT23	SMD diodes (two) BAV99 SOT23
D441	45680	LED, rot	LED, red

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D442	45680	LED, rot	LED, red
D443	45680	LED, rot	LED, red
D444	45680	LED, rot	LED, red
D445	45680	LED, rot	LED, red
D446	45680	LED, rot	LED, red
D447	45708	LED	LED
D448	45679	LED, rot	LED, red
D451	45679	LED, rot	LED, red
D452	45680	LED, rot	LED, red
D453	45680	LED, rot	LED, red
D454	45680	LED, rot	LED, red
D455	45680	LED, rot	LED, red
D456	45680	LED, rot	LED, red
D457	45680	LED, rot	LED, red
D458	45680	LED, rot	LED, red
J001	45706	Buchse, Winkelklinke BNC 50R	Socket BNC 50R
J002	45409	Hohlklinkenbuchse	Jack bush
J003	45695	Klinkenbuchse 6,3mm	Jack socket 6,3mm
J004	45676	Einbaustecker XLR3M	Socket XLR3M
J101	45706	Buchse, Winkelklinke BNC 50R	Socket BNC 50R
L001A	45884	SMD Luftspule 43nH SUP16 138-181MHz	SMD air core coil 43nH SUP16 138-181MHz
L001B	45883	SMD Luftspule 35,5nH SUP16 174-223MHz	SMD air core coil 35.5nH SUP16 174-223MHz
L001C	45881	SMD Luftspule 22nH SUP16 216-260MHz	SMD air core coil 22nH SUP16 216-260MHz
L002	46559	SMD Spule 470nH	SMD coil 470nH
L003	32123	SMD Spule 4,7uH	SMD coil 4.7uH
L004A	45884	SMD Luftspule 43nH SUP16 138-181MHz	SMD air core coil 43nH SUP16 138-181MHz
L004B	45883	SMD Luftspule 35,5nH SUP16 174-260MHz	SMD air core coil 35.5nH SUP16 174-260MHz
L005A	45884	SMD Luftspule 43nH SUP16 138-155MHz	SMD air core coil 43nH SUP16 138-155MHz
L005B	45883	SMD Luftspule 35,5nH SUP16 148-223MHz	SMD air core coil 35.5nH SUP16 148-223MHz
L005C	45881	SMD Luftspule 22nH SUP16 216-260MHz	SMD air core coil 22nH SUP16 216-260MHz
L006A	45884	SMD Luftspule 43nH SUP16 138-181MHz	SMD air core coil 43nH SUP16 138-181MHz
L006B	45883	SMD Luftspule 35,5nH SUP16 174-260MHz	SMD air core coil 35.5nH SUP16 174-260MHz
L029	45385	SMD Spule 27nH	SMD coil 27nH
L030	45682	SMD Spule 680nH	SMD coil 680nH
L031	45886	SMD Spule 820nH SUP8	SMD coil 820nH SUP8
L034	45683	SMD Spule 10uH	SMD coil 10uH
L040	45683	SMD Spule 10uH	SMD coil 10uH
L101A	45884	SMD Luftspule 43nH SUP16 138-181MHz	SMD air core coil 43nH SUP16 138-181MHz
L101B	45883	SMD Luftspule 35,5nH SUP16 174-223MHz	SMD air core coil 35.5nH SUP16 174-223MHz
L101C	45881	SMD Luftspule 22nH SUP16 216-260MHz	SMD air core coil 22nH SUP16 216-260MHz
L102	46559	SMD Spule 470nH	SMD coil 470nH
L103	32123	SMD Spule 4,7uH	SMD coil 4.7uH
L103A	17941	SMD Kondensator KERKO 4,7pF 50V NP0 0805 (MOQ:50x) 138-181MHz	SMD capacitor KERKO 4.7pF 50V NP0 0805 (MOQ:50x) 138-181MHz
L103B	29140	SMD Kondensator KERKO 3,9pF 50V NP0 0805 (MOQ:50x) 174-260MHz	SMD capacitor KERKO 3.9pF 50V NP0 0805 (MOQ:50x) 174-260MHz
L104A	45884	SMD Luftspule 43nH SUP16 138-181MHz	SMD air core coil 43nH SUP16 138-181MHz
L104B	45883	SMD Luftspule 35,5nH SUP16 174-260MHz	SMD air core coil 35.5nH SUP16 174-260MHz
L105A	45884	SMD Luftspule 43nH SUP16 138-155MHz	SMD air core coil 43nH SUP16 138-155MHz
L105B	45883	SMD Luftspule 35,5nH SUP16 148-223MHz	SMD air core coil 35.5nH SUP16 148-223MHz
L105C	45881	SMD Luftspule 22nH SUP16 216-260MHz	SMD air core coil 22nH SUP16 216-260MHz
L106A	45884	SMD Luftspule 43nH SUP16 138-181MHz	SMD air core coil 43nH SUP16 138-181MHz
L106B	45883	SMD Luftspule 35,5nH SUP16 174-260MHz	SMD air core coil 35.5nH SUP16 174-260MHz

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L129	45385	SMD Spule 27nH	SMD coil 27nH
L130	45682	SMD Spule 680nH	SMD coil 680nH
L131	45886	SMD Spule 820nH SUP8	SMD coil 820nH SUP8
L134	45683	SMD Spule 10uH	SMD coil 10uH
L140	45683	SMD Spule 10uH	SMD coil 10uH
L205	32123	SMD Spule 4,7uH	SMD coil 4.7uH
L206	32123	SMD Spule 4,7uH	SMD coil 4.7uH
L211A	41624	SMD Spule 330nH	SMD coil 330nH
		138-181MHz	138-181MHz
L211B	40852	SMD Spule 100nH	SMD coil 100nH
		216-260MHz	216-260MHz
L212	45395	SMD Spule 180nH	SMD coil 180nH
		174-223MHz	174-223MHz
L215	37191	SMD Spule 1uH	SMD coil 1uH
L224	45886	SMD Spule 820nH SUP8	SMD coil 820nH SUP8
L225	32123	SMD Spule 4,7uH	SMD coil 4.7uH
L228A	37358	SMD Spule 220nH	SMD coil 220nH
		138-181MHz	138-181MHz
L228B	41344	SMD Spule 150uH	SMD coil 150uH
		174-223MHz	174-223MHz
L228C	40852	SMD Spule 100nH	SMD coil 100nH
		216-260MHz	216-260MHz
L229	32123	SMD Spule 4,7uH	SMD coil 4.7uH
L313	32123	SMD Spule 4,7uH	SMD coil 4.7uH
Q001	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q002	45721	SMD Transistor BFP196 SOT143	SMD transistor BFP196 SOT143
Q003	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q004	43663	SMD Transistor BFG67/X SOT143	SMD transistor BFG67/X SOT143
Q005	32881	Transistor BFS19 SOT23	Transistor BFS19 SOT23
Q006	32881	Transistor BFS19 SOT23	Transistor BFS19 SOT23
Q101	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q102	45721	SMD Transistor BFP196 SOT143	SMD transistor BFP196 SOT143
Q103	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q104	43663	SMD Transistor BFG67/X SOT143	SMD transistor BFG67/X SOT143
Q105	32881	Transistor BFS19 SOT23	Transistor BFS19 SOT23
Q106	32881	Transistor BFS19 SOT23	Transistor BFS19 SOT23
Q203	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q204	41278	SMD Transistor BFR93A SOT23	SMD transistor BFR93A SOT23
Q205	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q206	43663	SMD Transistor BFG67/X SOT143	SMD transistor BFG67/X SOT143
Q208	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q209	43663	SMD Transistor BFG67/X SOT143	SMD transistor BFG67/X SOT143
Q211	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q212	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q335	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q345	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q400	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q410	32467	SMD Transistor BC850B SOT23	SMD transistor BC850B SOT23
Q433	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q434	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q435	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
Q436	32468	SMD Transistor BC860B SOT23	SMD transistor BC860B SOT23
R001	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R002	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R003	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R004	45121	SMD Widerstand 15R 5% 0603 (MOQ:50x)	SMD resistor 15R 5% 0603 (MOQ:50x)
R006	45285	SMD Widerstand 56R 5% 0603 (MOQ:50x)	SMD resistor 56R 5% 0603 (MOQ:50x)
R007	45203	SMD Widerstand 4R7 10% 0603 (MOQ:50x)	SMD resistor 4R7 10% 0603 (MOQ:50x)
R010	45121	SMD Widerstand 15R 5% 0603 (MOQ:50x)	SMD resistor 15R 5% 0603 (MOQ:50x)
R011	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
R012	45121	SMD Widerstand 15R 5% 0603 (MOQ:50x)	SMD resistor 15R 5% 0603 (MOQ:50x)
R013	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
R014	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
		148-260MHz	148-260MHz
R015A	45295	SMD Widerstand 0R 0603 (MOQ:50x)	SMD resistor 0R 0603 (MOQ:50x)
		138-155MHz	138-155MHz
R015B	45121	SMD Widerstand 15R 5% 0603 (MOQ:50x)	SMD resistor 15R 5% 0603 (MOQ:50x)
		148-260MHz	148-260MHz
R016	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
		148-260MHz	148-260MHz
R017	45295	SMD Widerstand 0R 0603 (MOQ:50x)	SMD resistor 0R 0603 (MOQ:50x)
R030	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R031	45220	SMD Widerstand 56k 5% 0603 (MOQ:50x)	SMD resistor 56k 5% 0603 (MOQ:50x)

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R032	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R033	45133	SMD Widerstand 1k5 5% 0603 (MOQ:50x)	SMD resistor 1k5 5% 0603 (MOQ:50x)
R034	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R035	45120	SMD Widerstand 10R 5% 0603 (MOQ:50x)	SMD resistor 10R 5% 0603 (MOQ:50x)
R036	45120	SMD Widerstand 10R 5% 0603 (MOQ:50x)	SMD resistor 10R 5% 0603 (MOQ:50x)
R037	45123	SMD Widerstand 33R 5% 0603 (MOQ:50x)	SMD resistor 33R 5% 0603 (MOQ:50x)
R038	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R039	45127	SMD Widerstand 150R 5% 0603 (MOQ:50x)	SMD resistor 150R 5% 0603 (MOQ:50x)
R040	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
R041	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R042	45143	SMD Widerstand 68k 5% 0603 (MOQ:50x)	SMD resistor 68k 5% 0603 (MOQ:50x)
R043	45128	SMD Widerstand 220R 5% 0603 (MOQ:50x)	SMD resistor 220R 5% 0603 (MOQ:50x)
R044	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R045	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R046	45123	SMD Widerstand 33R 5% 0603 (MOQ:50x)	SMD resistor 33R 5% 0603 (MOQ:50x)
R047	45206	SMD Widerstand 270R 5% 0603 (MOQ:50x)	SMD resistor 270R 5% 0603 (MOQ:50x)
R048	45293	SMD Widerstand Film 3R32 1% 0603 (MOQ:50x)	SMD resistor film 3R32 1% 0603 (MOQ:50x)
R060	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
R061	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R062	45120	SMD Widerstand 10R 5% 0603 (MOQ:50x)	SMD resistor 10R 5% 0603 (MOQ:50x)
R063	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R064	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R065	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R101	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R102	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R103	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R104	45121	SMD Widerstand 15R 5% 0603 (MOQ:50x)	SMD resistor 15R 5% 0603 (MOQ:50x)
R106	45285	SMD Widerstand 56R 5% 0603 (MOQ:50x)	SMD resistor 56R 5% 0603 (MOQ:50x)
R107	45203	SMD Widerstand 4R7 10% 0603 (MOQ:50x)	SMD resistor 4R7 10% 0603 (MOQ:50x)
R110	45121	SMD Widerstand 15R 5% 0603 (MOQ:50x)	SMD resistor 15R 5% 0603 (MOQ:50x)
R111A	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x) 138-155, 174-260MHz	SMD resistor 330R 5% 0603 (MOQ:50x) 138-155, 174-260MHz
R111B	45205	SMD Widerstand 180R 5% 0603 (MOQ:50x) 148-181MHz	SMD resistor 180R 5% 0603 (MOQ:50x) 148-181MHz
R112A	45121	SMD Widerstand 15R 5% 0603 (MOQ:50x) 138-155, 174-260MHz	SMD resistor 15R 5% 0603 (MOQ:50x) 138-155, 174-260MHz
R112B	45123	SMD Widerstand 33R 5% 0603 (MOQ:50x) 148-181MHz	SMD resistor 33R 5% 0603 (MOQ:50x) 148-181MHz
R113A	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x) 138-155, 174-260MHz	SMD resistor 330R 5% 0603 (MOQ:50x) 138-155, 174-260MHz
R113B	45205	SMD Widerstand 180R 5% 0603 (MOQ:50x) 148-181MHz	SMD resistor 180R 5% 0603 (MOQ:50x) 148-181MHz
R114	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x) 148-260MHz	SMD resistor 330R 5% 0603 (MOQ:50x) 148-260MHz
R115A	45295	SMD Widerstand 0R 0603 (MOQ:50x) 138-155MHz	SMD resistor 0R 0603 (MOQ:50x) 138-155MHz
R115B	45121	SMD Widerstand 15R 5% 0603 (MOQ:50x) 148-260MHz	SMD resistor 15R 5% 0603 (MOQ:50x) 148-260MHz
R116	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x) 148-260MHz	SMD resistor 330R 5% 0603 (MOQ:50x) 148-260MHz
R130	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R131	45220	SMD Widerstand 56k 5% 0603 (MOQ:50x)	SMD resistor 56k 5% 0603 (MOQ:50x)
R132	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R133	45133	SMD Widerstand 1k5 5% 0603 (MOQ:50x)	SMD resistor 1k5 5% 0603 (MOQ:50x)
R134	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R135	45120	SMD Widerstand 10R 5% 0603 (MOQ:50x)	SMD resistor 10R 5% 0603 (MOQ:50x)
R136	45120	SMD Widerstand 10R 5% 0603 (MOQ:50x)	SMD resistor 10R 5% 0603 (MOQ:50x)
R137	45123	SMD Widerstand 33R 5% 0603 (MOQ:50x)	SMD resistor 33R 5% 0603 (MOQ:50x)
R138	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R139	45127	SMD Widerstand 150R 5% 0603 (MOQ:50x)	SMD resistor 150R 5% 0603 (MOQ:50x)
R140	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
R141	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R142	45143	SMD Widerstand 68k 5% 0603 (MOQ:50x)	SMD resistor 68k 5% 0603 (MOQ:50x)
R143	45128	SMD Widerstand 220R 5% 0603 (MOQ:50x)	SMD resistor 220R 5% 0603 (MOQ:50x)
R144	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R145	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R146	45123	SMD Widerstand 33R 5% 0603 (MOQ:50x)	SMD resistor 33R 5% 0603 (MOQ:50x)
R147	45206	SMD Widerstand 270R 5% 0603 (MOQ:50x)	SMD resistor 270R 5% 0603 (MOQ:50x)
R148	45293	SMD Widerstand Film 3R32 1% 0603 (MOQ:50x)	SMD resistor film 3R32 1% 0603 (MOQ:50x)
R160	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
R161	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R162	45120	SMD Widerstand 10R 5% 0603 (MOQ:50x)	SMD resistor 10R 5% 0603 (MOQ:50x)
R163	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)

POS	IDENT	BEZEICHNUNG	DESCRIPTION
R164	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R165	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R201	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R202	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R203	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R204	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R205	45128	SMD Widerstand 220R 5% 0603 (MOQ:50x)	SMD resistor 220R 5% 0603 (MOQ:50x)
R206	45128	SMD Widerstand 220R 5% 0603 (MOQ:50x)	SMD resistor 220R 5% 0603 (MOQ:50x)
R207	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R211	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R212	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R213	45285	SMD Widerstand 56R 5% 0603 (MOQ:50x)	SMD resistor 56R 5% 0603 (MOQ:50x)
R214	45203	SMD Widerstand 4R7 10% 0603 (MOQ:50x)	SMD resistor 4R7 10% 0603 (MOQ:50x)
R215	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R216	45125	SMD Widerstand 68R 5% 0603 (MOQ:50x)	SMD resistor 68R 5% 0603 (MOQ:50x)
R218	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R221	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R222	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R223	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R224	45123	SMD Widerstand 33R 5% 0603 (MOQ:50x)	SMD resistor 33R 5% 0603 (MOQ:50x)
R227	45284	SMD Widerstand 39R 5% 0603 (MOQ:50x)	SMD resistor 39R 5% 0603 (MOQ:50x)
R228	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R229	45130	SMD Widerstand 470R 5% 0603 (MOQ:50x)	SMD resistor 470R 5% 0603 (MOQ:50x)
R233	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R234	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R249	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R250	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R251	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R252	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R253	45130	SMD Widerstand 470R 5% 0603 (MOQ:50x)	SMD resistor 470R 5% 0603 (MOQ:50x)
R254	45150	SMD Widerstand 1M 5% 0603 (MOQ:50x)	SMD resistor 1M 5% 0603 (MOQ:50x)
R255	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R256	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R257	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R258	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R260	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x) 138-181MHz	SMD resistor 220k 5% 0603 (MOQ:50x) 138-181MHz
R261	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R262	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x) 138-155, 174-223MHz	SMD resistor 220k 5% 0603 (MOQ:50x) 138-155, 174-223MHz
R263	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x) 138-260MHz	SMD resistor 100k 5% 0603 (MOQ:50x) 138-260MHz
R264	45148	SMD Widerstand 470k 5% 0603 (MOQ:50x)	SMD resistor 470k 5% 0603 (MOQ:50x)
R265	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R266	45148	SMD Widerstand 470k 5% 0603 (MOQ:50x)	SMD resistor 470k 5% 0603 (MOQ:50x)
R267	45148	SMD Widerstand 470k 5% 0603 (MOQ:50x)	SMD resistor 470k 5% 0603 (MOQ:50x)
R269	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R288	45120	SMD Widerstand 10R 5% 0603 (MOQ:50x)	SMD resistor 10R 5% 0603 (MOQ:50x)
R290	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R291	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R292	45129	SMD Widerstand 330R 5% 0603 (MOQ:50x)	SMD resistor 330R 5% 0603 (MOQ:50x)
R293	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R294	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R295	45145	SMD Widerstand 150k 5% 0603 (MOQ:50x)	SMD resistor 150k 5% 0603 (MOQ:50x)
R296	34461	SMD Widerstand 1k 1% 0204 (MOQ:50x)	SMD resistor 1k 1% 0204 (MOQ:50x)
R300	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R301	45214	SMD Widerstand 5k6 5% 0603 (MOQ:50x)	SMD resistor 5k6 5% 0603 (MOQ:50x)
R302	45003	SMD Trimmwiderstand 50k	SMD resistor, variable 50k
R303	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R305	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R306	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R307	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R308	45214	SMD Widerstand 5k6 5% 0603 (MOQ:50x)	SMD resistor 5k6 5% 0603 (MOQ:50x)
R309	45003	SMD Trimmwiderstand 50k	SMD resistor, variable 50k
R310	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R311	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R312	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R313	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R315	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R316	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R317	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R318	45141	SMD Widerstand 33k 5% 0603 (MOQ:50x)	SMD resistor 33k 5% 0603 (MOQ:50x)
R319	45145	SMD Widerstand 150k 5% 0603 (MOQ:50x)	SMD resistor 150k 5% 0603 (MOQ:50x)

POS	IDENT	BEZEICHNUNG	DESCRIPTION
R320	45133	SMD Widerstand 1k5 5% 0603 (MOQ:50x)	SMD resistor 1k5 5% 0603 (MOQ:50x)
R321	40343	SMD Widerstand MELF 2k21 1% 0204 (MOQ:50x)	SMD resistor MELF 2k21 1% 0204 (MOQ:50x)
R322	45145	SMD Widerstand 150k 5% 0603 (MOQ:50x)	SMD resistor 150k 5% 0603 (MOQ:50x)
R323	45141	SMD Widerstand 33k 5% 0603 (MOQ:50x)	SMD resistor 33k 5% 0603 (MOQ:50x)
R324	45143	SMD Widerstand 68k 5% 0603 (MOQ:50x)	SMD resistor 68k 5% 0603 (MOQ:50x)
R325	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R326	37202	SMD Widerstand MELF 33k2 1% 0204 (MOQ:50x)	SMD resistor MELF 33k2 1% 0204 (MOQ:50x)
R327	34463	SMD Widerstand MELF 10k 1% 0204 (MOQ:50x)	SMD resistor MELF 10k 1% 0204 (MOQ:50x)
R328	45153	SMD Widerstand 10M 10% 0603 (MOQ:50x)	SMD resistor 10M 10% 0603 (MOQ:50x)
R329	45153	SMD Widerstand 10M 10% 0603 (MOQ:50x)	SMD resistor 10M 10% 0603 (MOQ:50x)
R330	45217	SMD Widerstand 18k 5% 0603 (MOQ:50x)	SMD resistor 18k 5% 0603 (MOQ:50x)
R331	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R332	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R333	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R334	40479	MELF Widerstand 68k1 1% 0204 (MOQ:50x)	MELF resistor 68k1 1% 0204 (MOQ:50x)
R335	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R336	37201	SMD Widerstand MELF 22k1 1% 0204 (MOQ:50x)	SMD resistor MELF 22k1 1% 0204 (MOQ:50x)
R337	41234	Potentiometer 2k5	Potentiometer 2k5
R338	45126	SMD Widerstand 100R 5% 0603 (MOQ:50x)	SMD resistor 100R 5% 0603 (MOQ:50x)
R339	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R340	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R341	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R342	45124	SMD Widerstand 47R 5% 0603 (MOQ:50x)	SMD resistor 47R 5% 0603 (MOQ:50x)
R343	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R344	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R345	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R346	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R347	45126	SMD Widerstand 100R 5% 0603 (MOQ:50x)	SMD resistor 100R 5% 0603 (MOQ:50x)
R348	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R349	45126	SMD Widerstand 100R 5% 0603 (MOQ:50x)	SMD resistor 100R 5% 0603 (MOQ:50x)
R350	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R351	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R352	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R353	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R354	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R355	45141	SMD Widerstand 33k 5% 0603 (MOQ:50x)	SMD resistor 33k 5% 0603 (MOQ:50x)
R356	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R357	45151	SMD Widerstand 2M2 10% 0603 (MOQ:50x)	SMD resistor 2M2 10% 0603 (MOQ:50x)
R358	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R361	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R362	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R363	45139	SMD Widerstand 15k 5% 0603 (MOQ:50x)	SMD resistor 15k 5% 0603 (MOQ:50x)
R364	45139	SMD Widerstand 15k 5% 0603 (MOQ:50x)	SMD resistor 15k 5% 0603 (MOQ:50x)
R366	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R367	45141	SMD Widerstand 33k 5% 0603 (MOQ:50x)	SMD resistor 33k 5% 0603 (MOQ:50x)
R368	45151	SMD Widerstand 2M2 10% 0603 (MOQ:50x)	SMD resistor 2M2 10% 0603 (MOQ:50x)
R369	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R370	45300	SMD Trimmwiderstand 10k (MOQ:50x)	SMD resistor, variable 10k (MOQ:50x)
R371	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R372	45300	SMD Trimmwiderstand 10k (MOQ:50x)	SMD resistor, variable 10k (MOQ:50x)
R373	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R374	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R375	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R376	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R377	45300	SMD Trimmwiderstand 10k (MOQ:50x)	SMD resistor, variable 10k (MOQ:50x)
R378	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R379	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R380	45300	SMD Trimmwiderstand 10k (MOQ:50x)	SMD resistor, variable 10k (MOQ:50x)
R381	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R382	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R383	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R385	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R386	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R387	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R388	45148	SMD Widerstand 470k 5% 0603 (MOQ:50x)	SMD resistor 470k 5% 0603 (MOQ:50x)
R389	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R393	45146	SMD Widerstand 220k 5% 0603 (MOQ:50x)	SMD resistor 220k 5% 0603 (MOQ:50x)
R394	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R395	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R396	45153	SMD Widerstand 10M 10% 0603 (MOQ:50x)	SMD resistor 10M 10% 0603 (MOQ:50x)
R397	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R398	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R399	45153	SMD Widerstand 10M 10% 0603 (MOQ:50x)	SMD resistor 10M 10% 0603 (MOQ:50x)

POS	IDENT	BEZEICHNUNG	DESCRIPTION
R400	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R401	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R402	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R403	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R404	45153	SMD Widerstand 10M 10% 0603 (MOQ:50x)	SMD resistor 10M 10% 0603 (MOQ:50x)
R405	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R406	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R407	37200	SMD Widerstand MELF 332R 1% 0204 (MOQ:50x)	SMD resistor MELF 332R 1% 0204 (MOQ:50x)
R408	37200	SMD Widerstand MELF 332R 1% 0204 (MOQ:50x)	SMD resistor MELF 332R 1% 0204 (MOQ:50x)
R409	37200	SMD Widerstand MELF 332R 1% 0204 (MOQ:50x)	SMD resistor MELF 332R 1% 0204 (MOQ:50x)
R410	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R420	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R421	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R422	45144	SMD Widerstand 100k 5% 0603 (MOQ:50x)	SMD resistor 100k 5% 0603 (MOQ:50x)
R423	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R424	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R425	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R426	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R427	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R428	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R429	45140	SMD Widerstand 22k 5% 0603 (MOQ:50x)	SMD resistor 22k 5% 0603 (MOQ:50x)
R430	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R431	45126	SMD Widerstand 100R 5% 0603 (MOQ:50x)	SMD resistor 100R 5% 0603 (MOQ:50x)
R433	45285	SMD Widerstand 56R 5% 0603 (MOQ:50x)	SMD resistor 56R 5% 0603 (MOQ:50x)
R434	45285	SMD Widerstand 56R 5% 0603 (MOQ:50x)	SMD resistor 56R 5% 0603 (MOQ:50x)
R435	45285	SMD Widerstand 56R 5% 0603 (MOQ:50x)	SMD resistor 56R 5% 0603 (MOQ:50x)
R436	45285	SMD Widerstand 56R 5% 0603 (MOQ:50x)	SMD resistor 56R 5% 0603 (MOQ:50x)
R437	45136	SMD Widerstand 4k7 5% 0603 (MOQ:50x)	SMD resistor 4k7 5% 0603 (MOQ:50x)
R440	45133	SMD Widerstand 1k5 5% 0603 (MOQ:50x)	SMD resistor 1k5 5% 0603 (MOQ:50x)
R441	45132	SMD Widerstand 1k 5% 0603 (MOQ:50x)	SMD resistor 1k 5% 0603 (MOQ:50x)
R442	45211	SMD Widerstand 1k8 5% 0603 (MOQ:50x)	SMD resistor 1k8 5% 0603 (MOQ:50x)
R443	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R444	45214	SMD Widerstand 5k6 5% 0603 (MOQ:50x)	SMD resistor 5k6 5% 0603 (MOQ:50x)
R445	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R446	45138	SMD Widerstand 10k 5% 0603 (MOQ:50x)	SMD resistor 10k 5% 0603 (MOQ:50x)
R447	45216	SMD Widerstand 12k 5% 0603 (MOQ:50x)	SMD resistor 12k 5% 0603 (MOQ:50x)
R448	45222	SMD Widerstand 120k 5% 0603 (MOQ:50x)	SMD resistor 120k 5% 0603 (MOQ:50x)
R450	45215	SMD Widerstand 8k2 5% 0603 (MOQ:50x)	SMD resistor 8k2 5% 0603 (MOQ:50x)
R451	45295	SMD Widerstand 0R 0603 (MOQ:50x)	SMD resistor 0R 0603 (MOQ:50x)
R452	45212	SMD Widerstand 2k7 5% 0603 (MOQ:50x)	SMD Widerstand 2k7 5% 0603 (MOQ:50x)
R453	45134	SMD Widerstand 2k2 5% 0603 (MOQ:50x)	SMD resistor 2k2 5% 0603 (MOQ:50x)
R454	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R455	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R456	45135	SMD Widerstand 3k3 5% 0603 (MOQ:50x)	SMD resistor 3k3 5% 0603 (MOQ:50x)
R457	45212	SMD Widerstand 2k7 5% 0603 (MOQ:50x)	SMD Widerstand 2k7 5% 0603 (MOQ:50x)
R458	45142	SMD Widerstand 47k 5% 0603 (MOQ:50x)	SMD resistor 47k 5% 0603 (MOQ:50x)
R501	34461	SMD Widerstand 1k 1% 0204 (MOQ:50x) 138-155MHz	SMD resistor 1k 1% 0204 (MOQ:50x) 138-155MHz
R502	34461	SMD Widerstand 1k 1% 0204 (MOQ:50x) 148-181MHz	SMD resistor 1k 1% 0204 (MOQ:50x) 148-181MHz
R503	34461	SMD Widerstand 1k 1% 0204 (MOQ:50x) 174-223MHz	SMD resistor 1k 1% 0204 (MOQ:50x) 174-223MHz
R504	34461	SMD Widerstand 1k 1% 0204 (MOQ:50x) 216-260MHz	SMD resistor 1k 1% 0204 (MOQ:50x) 216-260MHz
S001	45675	Codierschalter	Code switch
S002	45677	Druckschalter	Press switch
T001	46338	HF-Transformator 40MHz	RF transformer 40MHz
T103	46338	HF-Transformator 40MHz	RF transformer 40MHz
U001	45879	SMD IC TOP.1LZ	SMD IC TOP.1LZ
U002	45699	SMD IC FM ZF+DEMOD TDA1576T	SMD IC FM ZF+DEMOD TDA1576T
U003	45715	SMD IC EEPROM 1K	SMD IC EEPROM 1K
U004	45711	SMD IC PLL CMOS TBB206G	SMD IC PLL CMOS TBB206G
U005	45508	SMD IC NE701D SO8	SMD IC NE701D SO8
U006	72145	SMD IC MCU+AD Prog.EM1031 V1.3	SMD IC MCU+AD prog.EM1031 V1.3
U007	45709	SMD IC 78L05-0/70	SMD IC 78L05-0/70
U008	45707	IC 7808-0/70 TO220	IC 7808-0/70 TO220
U009	40099	SMD IC TL072CD SO8	SMD IC TL072CD SO8
U010	45037	IC HCMOS 74HC4066	IC HCMOS 74HC4066
U011	40099	SMD IC TL072CD SO8	SMD IC TL072CD SO8
U012	45093	SMD IC NE572D SOL16	SMD IC NE572D SOL16
U013	41277	SMD IC MC33078D SO8 SUP8	SMD IC MC33078D SO8 SUP8
U014	40099	SMD IC TL072CD SO8	SMD IC TL072CD SO8
U015	29114	IC 358-S08-0/70	IC 358-S08-0/70

POS	IDENT	BEZEICHNUNG	DESCRIPTION
U016	32249	IC 339	IC 339
U017	29114	IC 358-S08-0/70	IC 358-S08-0/70
U018	32249	IC 339	IC 339
U019	32249	IC 339	IC 339
U020	32249	IC 339	IC 339
U021	32249	IC 339	IC 339
U022	45751	SMD IC RN5VL41AATR	SMD IC RN5VL41AATR
U101	45879	SMD IC TOP.1LZ	SMD IC TOP.1LZ
U102	45699	SMD IC FM ZF+DEMOD TDA1576T	SMD IC FM ZF+DEMOD TDA1576T
Y003	45716	Quarz 4,000000MHz	Crystal 4.000000MHz
YF001	45885	Keramik-Filter 10,7MHz	Ceramic filter 10,7MHz
YF002	45885	Keramik-Filter 10,7MHz	Ceramic filter 10,7MHz
YF003	45885	Keramik-Filter 10,7MHz	Ceramic filter 10,7MHz
YF101	45885	Keramik-Filter 10,7MHz	Ceramic filter 10,7MHz
YF102	45885	Keramik-Filter 10,7MHz	Ceramic filter 10,7MHz
YF103	45885	Keramik-Filter 10,7MHz	Ceramic filter 10,7MHz
ZZ010	57300	Schaumverpackung	Foam packing
ZZ011	58860	Schaumzuschnitt	Foam insert
ZZ020	59367	Bedienungsanleitung EM1031-V	Instructions for use EM1031-V



An ... / To ...

- Ersatzteilabteilung / Spare Parts Department
- Dokumentation / Documentation
- Reparaturabteilung / Repair shop

Änderung durchführen ... / Make modification ...

- im Servicefall / in case of servicing
- bei Bedarf / if necessary
- Serien-Nr., Code-Nr., Lieferzeit / Serial no., Code no., delivery date
- Werkseitig durchgeführt ab / Factory-modified from

**EM 1031-U
EM 1031-V
BFR 1081-U
BFR 1081-V**

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MÖGLICHER FEHLER:

Ausfall des Druckschalters.

FEHLERURSACHE:

Fehler kann durch einen hohen Einschaltstrom auftreten.

FEHLERBEHEBUNG:

Einbau einer zusätzlichen Schalterplatine.

ERSATZTEILE:

Schalterplatine ID-Nr.: 77913
Druckschalter ID-Nr.: 45888

POSSIBLE FAULTS:

Failure of push switch.

CAUSE OF THE FAULT:

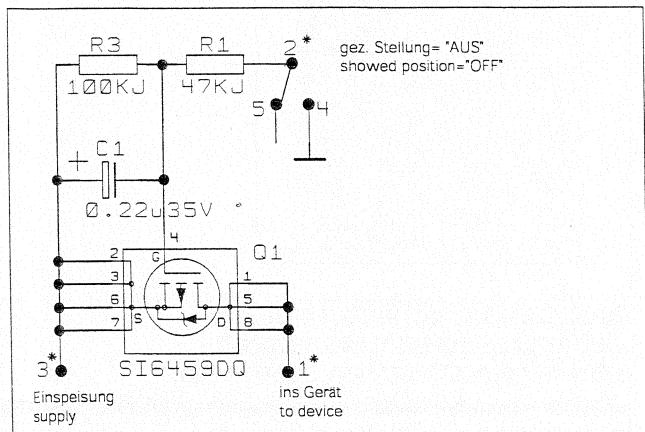
Failure may occur due to excessive making current.

REMEDIAL MEASURE:

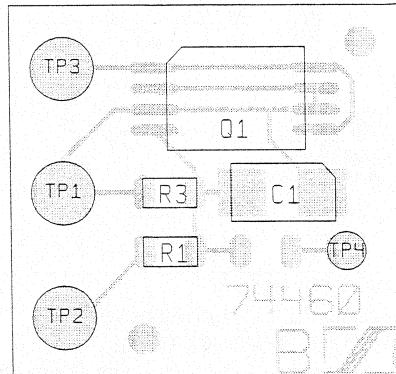
Mounting of an additional switch board.

SPARE PARTS:

switch board Spare Part No. 77913
push switch Spare Part No. 45888



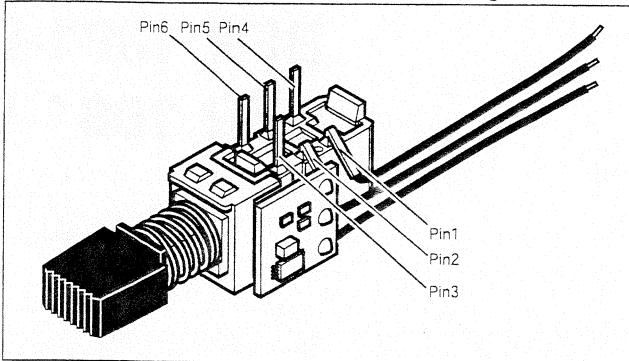
**ABBILDUNG 1, FIGURE 1
SCHALTERPLATINE, SWITCH BOARD
STROMLAUFPLAN, CIRCUIT DIAGRAM**



**ABBILDUNG 2, FIGURE 2
SCHALTERPLATINE, SWITCH BOARD
GEDRUCKTE SCHALTUNG, PRINTED CIRCUIT BOARD**

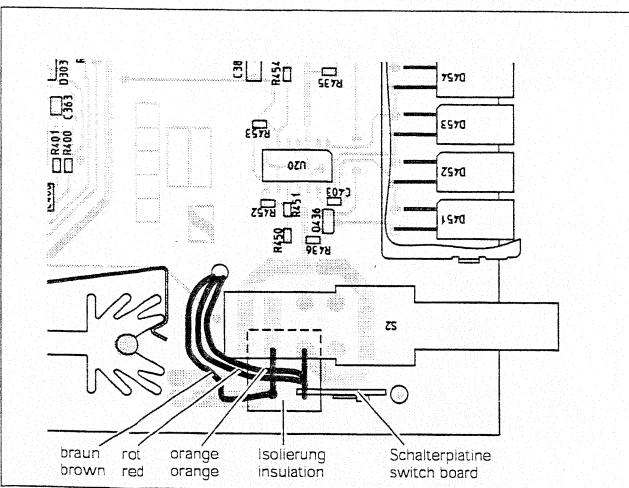
MONTAGEANLEITUNG

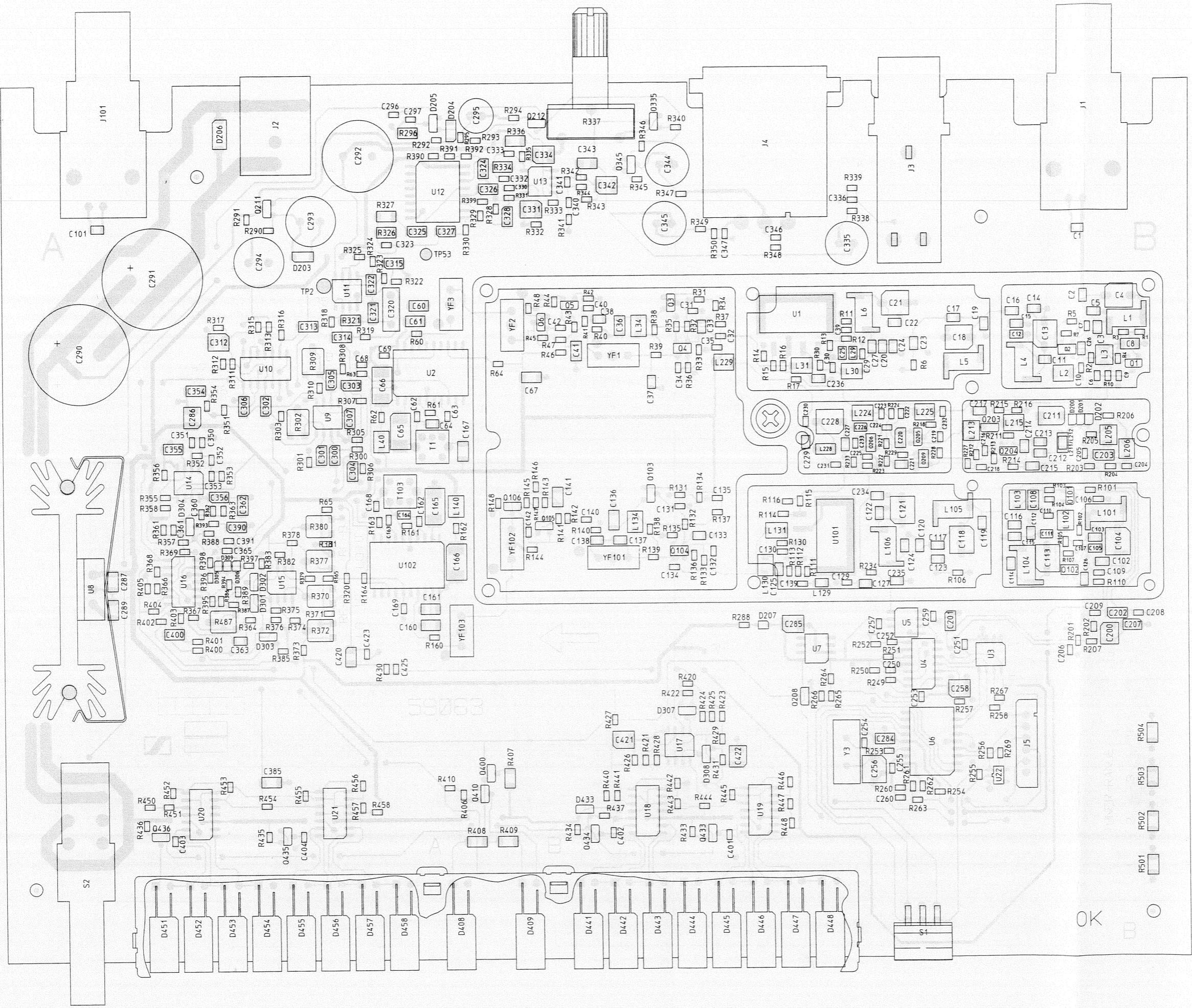
- Gehäusedeckel entfernen.
- Bedienknopf des Lautstärkeeinstellers abnehmen.
- Schrauben und Steckverbindung lösen.
- Seitenteile mit Frontplatte demontieren.
- Hauptplatine aus dem Empfänger ausbauen.
- Defekten Druckschalter von der Hauptplatine entlöten.
- Lötflächen der Hauptplatine von Lötzinn reinigen.



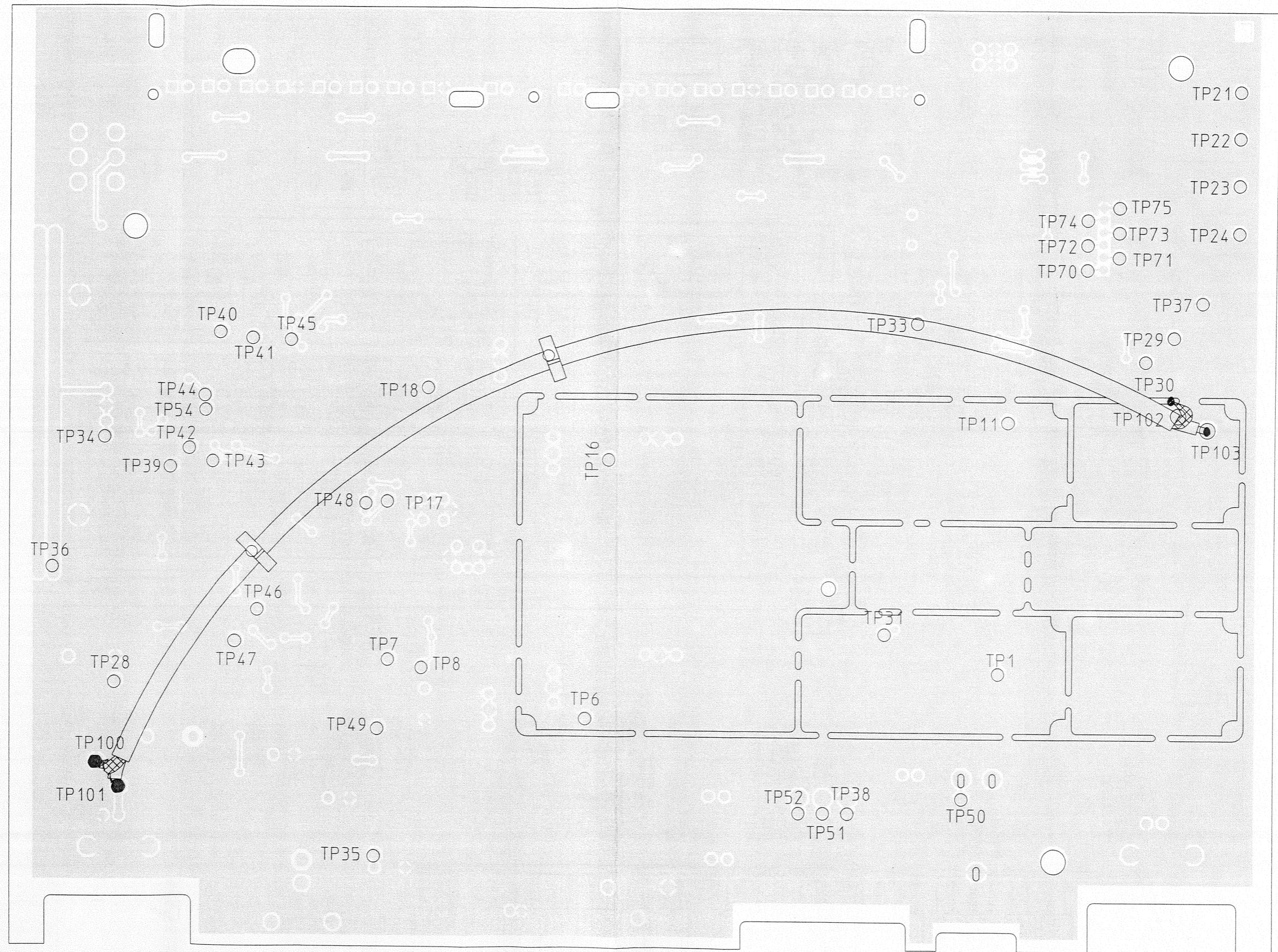
**ABBILDUNG 3, FIGURE 3
DRUCKSCHALTER MIT SCHALTERPLATINE
PUSH SWITCH WITH SWITCH BOARD**

- Drei verschiedenfarbig isolierte Schaltdrähte (z.B. braun, rot, orange) auf ca. 5cm kürzen, an den Enden auf ca. 2mm abisolieren und verzinnen. Davon einen Schaltdraht an TP1 der Schalterplatine und einen Schaltdraht an TP3 der Schalterplatine anlöten (siehe Abbildung 4).
- Pin1 und Pin2 des Druckschalters nach außen abwinkeln.
- Pin2 des Druckschalters mit TP2 der Schalterplatine verlöten.
- Pin1 des Druckschalters mit dem dritten Schaltdraht verlöten.
- Auf der Bestückungsseite des Boards zwei Durchkontaktierungen z.B. mit Isolierband isolieren, wie in Abbildung 5 dargestellt.





**EM 1031-V, GEDRUCKTE SCHALTUNG, BESTÜCKUNGSSEITE
EM 1031-V, PRINTED CIRCUIT BOARD, COMPONENT SIDE**



**EM 1031-V, GEDRUCKTE SCHALTUNG, LÖTSEITE
EM 1031-V, PRINTED CIRCUIT BOARD, SOLDER SIDE**